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Scottish Birds is the quarterly journal for SOC members, and is published in March, June, September and December annually.

Containing original papers relating to ornithology in Scotland, topical articles, bird observations, reports of rare and scarce bird sightings, alongside branch and Club-related news, our members tell us that *Scottish Birds* is one of the key benefits of belonging to the SOC. Its different sections have been developed to meet the wide needs of the birdwatching community, and the publication is renowned for its first-class photography.

An archive of the journal is available on the SOC website, where links can be found to other Club publications including the *Scottish Bird Report* online.

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On the one hand, a birdwatching club. Established in 1936, the Scottish Ornithologists' Club (SOC) is Scotland's bird club with 15 branches around the country and a growing membership of over 3,000. Through a programme of talks, outings, conferences and other events, it brings together like-minded individuals with a passion for birds, nature and conservation.

On the other, a network of volunteers across Scotland, gathering vital, impartial information about our wild birds. The data we collect is made available to conservationists, planners and developers, and is used by organisations such as the RSPB, as one of the first points of reference in informed conservation planning.

Club Headquarters can be found at Waterston House, Aberlady, overlooking the scenic local nature reserve. Housed within, is the George Waterston Library, the largest ornithological library in Scotland, and the Donald Watson Gallery - one of the jewels in the Waterston House crown, exhibiting wildlife art all year-round.

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As well as receiving *Scottish Birds* every quarter, SOC members have access to a programme of talks and outings across Scotland and affiliation to a local branch of the Club. New members will receive a welcome pack on joining, plus a thank you gift if paying their subscription by direct debit.

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A European perspective

Plate 1. Ian Bainbridge birding in Bulgaria, February 2012. © *Carole Bainbridge*

Without mentioning it by name, this winter the UK has seen its largest political change in almost 50 years. We may see new political alignments and trade arrangements, but what difference does that make to our birds? They, of course, don't recognise political boundaries, and many migrants pass through dozens of countries each year as they move from their breeding grounds to winter quarters. We are lucky enough to host many species for part of the year, but we share them with many neighbours and further flung nations, and all of us have responsibilities for their conservation. At times like these, I reflect on those species for which we have particular responsibilities from a European perspective.

In this 'Year of the Coast and Waters', I'm drawn to seabirds; we have huge proportions of the world's Gannets, Great Skuas and Manx Shearwaters (90% breed in the UK), and large proportions of the European populations of most auks (55% of Europe's Guillemots), for a start. Scotland's seabirds are truly internationally important. Wintering wildfowl are equally important; we host all the Svalbard Barnacle Geese, and large proportions of Greenland Whitefronts and Barnacles, Greylags, and Iceland/Greenland Pinkfeet, along with huge numbers of migrant ducks. The wintering waders on our coasts and estuaries come from as far afield as Arctic Canada and Siberia, and Shetland-breeding Red-necked Phalaropes winter off the Galapagos; then there are world wanderers like Arctic Terns and Manx Shearwaters.

Some non-migrant birds are also very special to us. Our only endemic species is the Scottish Crossbill; it's a little icon we need to value and conserve, and let's face it, only we can do that. The same goes for the island subspecies of Wren. It's easy to forget that we also host many endemic subspecies on the mainland as well; Red Grouse is another emblematic bird, but what about Pied and Yellow Wagtails, Dippers and Twite, all of which are distinct subspecies in the British Isles.

From a European perspective, Scotland also has many internationally important habitats, many of which hold key bird species. Much of this is linked to our geographical position: a series of islands on the western edge of Europe, with Atlantic weather which sweeps in from the west, generating mild and moist, oceanic conditions. This oceanicity has a profound influence on many of our key habitats - the cliffs and islands holding huge seabird colonies, the machairs of the Outer Hebrides, the Atlantic oak and hazelwoods which form temperate rainforest, the Lewis, Sutherland and Caithness peatlands. The impact of these habitats on our bird populations is huge. For example, Scotland's breeding wader populations are of international importance too, especially the assemblages found on the machair of Uist and on Orkney, and on the peatlands of Lewis, the Flow Country and Shetland.

Many of the best examples of these habitats have been protected by the EU Birds and Habitats Directives, and it is our responsibility to ensure that they remain protected, regardless of political changes and circumstances. They are our natural heritage which we must pass on to future generations in at least as good a state as we found them.

Finally, I must congratulate again the 'Where to watch birds in Scotland' app team. The app won 'Product of the Year' in the 2019 Birders' Choice Awards on the basis of a public vote (see pages 67–68), a real show of confidence for a fabulous development, which will continue to help us all find those special birds and habitats for which Scotland is a special place, and of which we should be truly proud.

Ian Bainbridge, SOC President.

Plate 2. Grey Partridges, Musselburgh, Lothian, December 2014. © *Ian Andrews*

Changes in the distribution of breeding birds in South-east Scotland between 1988–94 and 2008–13 based on tetrad atlas methodology

I.J. ANDREWS & M. HOLLING

Introduction

The distribution of all the bird species breeding in the combined Lothian and Borders recording areas (hereafter South-east Scotland) was mapped in 1988–94 and 2008–13 (Murray *et al.* 1998, Murray *et al.* 2019). These local tetrad (2x2 km) atlases were largely synchronous with the national hectad (10x10 km) atlases of 1988–91 and 2008–11 (Gibbons *et al.* 1993, Balmer *et al.* 2013), but in both cases the survey period was extended — to seven and six years, respectively — to enable full coverage at tetrad level to be achieved. Both were outstanding examples of citizen science, with up to 800 volunteer amateurs contributing to the local 2008–13 atlas.

Murray *et al.* (1998) had been able to analyse changes in the avifauna between 1968–72 and 1988–91 based on the 10-km square data of the two national atlases as there was no earlier tetrad data to compare with the 1988–94 tetrad data. They identified 12 new colonists, 20 species which showed a major spread and 31 'increasing' species. On the other hand, 20 'declining' species were identified but there had been no total losses in that period.

This paper compares the distributions of breeding species across the 20-year period between the 1988–94 and 2008–13 tetrad atlases.

The study area

The study area comprises 6,456 km² or 8.2% of the land area of Scotland (Figure 1). This is made up of 1,770 tetrads that lie entirely or partially within the combined recording areas of Lothian and Borders. This area equates to the unitary authorities of West Lothian, City of Edinburgh, Midlothian, East Lothian and the Scottish Borders.

The altitudinal range in the study area is considerable, extending from sea level to 840 m on Broad Law in the Tweedsmuir Hills. The coastal lowlands of Lothian and the drainage basin of the River Tweed are dominated by wooded, agricultural and urban land. The Pentland Hills, Moorfoot Hills, Lammermuir Hills and Tweedsmuir Hills form the main hill and mountain ranges. In the higher areas, forestry, rough pasture and grouse shooting estates predominate. Compared to neighbouring regions, South-east Scotland is lacking in extensive saltmarsh and reedbeds, lowland waterbodies, and mountains above 914 m (3,000 ft).

Methodology

South-east Scotland's two local breeding bird atlases aimed to map the distribution of all species across the study area based on three standard categories - confirmed, probable and possible breeding (in this paper, 'breeding' refers to these three categories combined unless otherwise stated). For most species, the breeding season was defined as 1 April to 31 July. There were some minor exceptions for species with extended or early/late breeding seasons.

The first tetrad atlas (1988–94)

The methodology is described in detail in Gibbons *et al.* (1993) and Murray *et al.* (1998). In essence, the fieldworkers (numbering over 230) were asked to visit each tetrad to obtain the 'best' breeding evidence for each species that was recorded. Although each visit for the national atlas was for two hours, locally there was no limit on the time that could be spent in each tetrad once that requirement had been met. Again, nationally, species abundance was recorded in just eight selected tetrads per hectad but locally, volunteers were only asked to record breeding evidence for the remaining tetrads.

The second tetrad atlas (2008–13)

The methodology is described in detail in Balmer *et al.* (2013) and Murray *et al.* (2019). In a major change from the earlier methodology, observers were asked to record both breeding evidence and species abundance. In addition, the visits were more structured, with a request for two, one-hour timed tetrad visits (TTVs) in early and late season (April–May and June–July). Additional 'roving records' were also encouraged. With the need to count all the birds seen and heard (in many tetrads this was time consuming in itself) and also a feeling that the TTV visits were sufficient by themselves, further fieldwork to establish breeding evidence was given less priority by volunteers than it had been in 1988–94.

Change maps

Murray *et al.* (2019) published change maps for all breeding species based on a species' gain, loss or 'no change' between the atlas periods (irrespective of the detailed breeding categories). For each of the species assemblages (see below), the change in the number of breeding species per tetrad between 1988–94 and 2008–13 was calculated. Only the confirmed and probable breeding categories were considered.

Altitude graphs

Each tetrad in South-east Scotland was assigned a mean altitude based on the statistical analysis of a detailed digital terrain model (Ordnance Survey OpenData). For tetrads where only part of the area lies within South-east Scotland, the mean altitude relates only to the land within the study area. Each species record in a tetrad could therefore be assigned an altitude that is the mean altitude of

the tetrad. This allows comparisons to be made of the altitudinal distribution of species (and species assemblages) between 1988–94 and 2008–13. These have been plotted as histograms where the y-axis is the number of tetrads in each altitude band, and the altitude increasing to the right.

In terms of altitude, each tetrad was assigned a positive or negative trend based on the change in the number of breeding species in each assemblage. These tetrad counts were then plotted in altitude bands with transparent colours such that a resultant orange indicates more negatives than positives (declines), and green indicates more positives than negatives (increases). Tetrads with no change or with no species in that assemblage are shown as grey on the histograms.

Results

Diversity

The diversity of the avifauna in South-east Scotland is considerable, with evidence of breeding for 166 species in 1988–94 and 164 in 2018–13 (Table 1).

Table 1. Total number of breeding species recorded in South-east Scotland, 1988–94 and 2008–13.

Recording area	1988–94	2008–13
Lothian	154	152
Borders	158	153
South-east Scotland (Lothian and Borders combined)	166	164

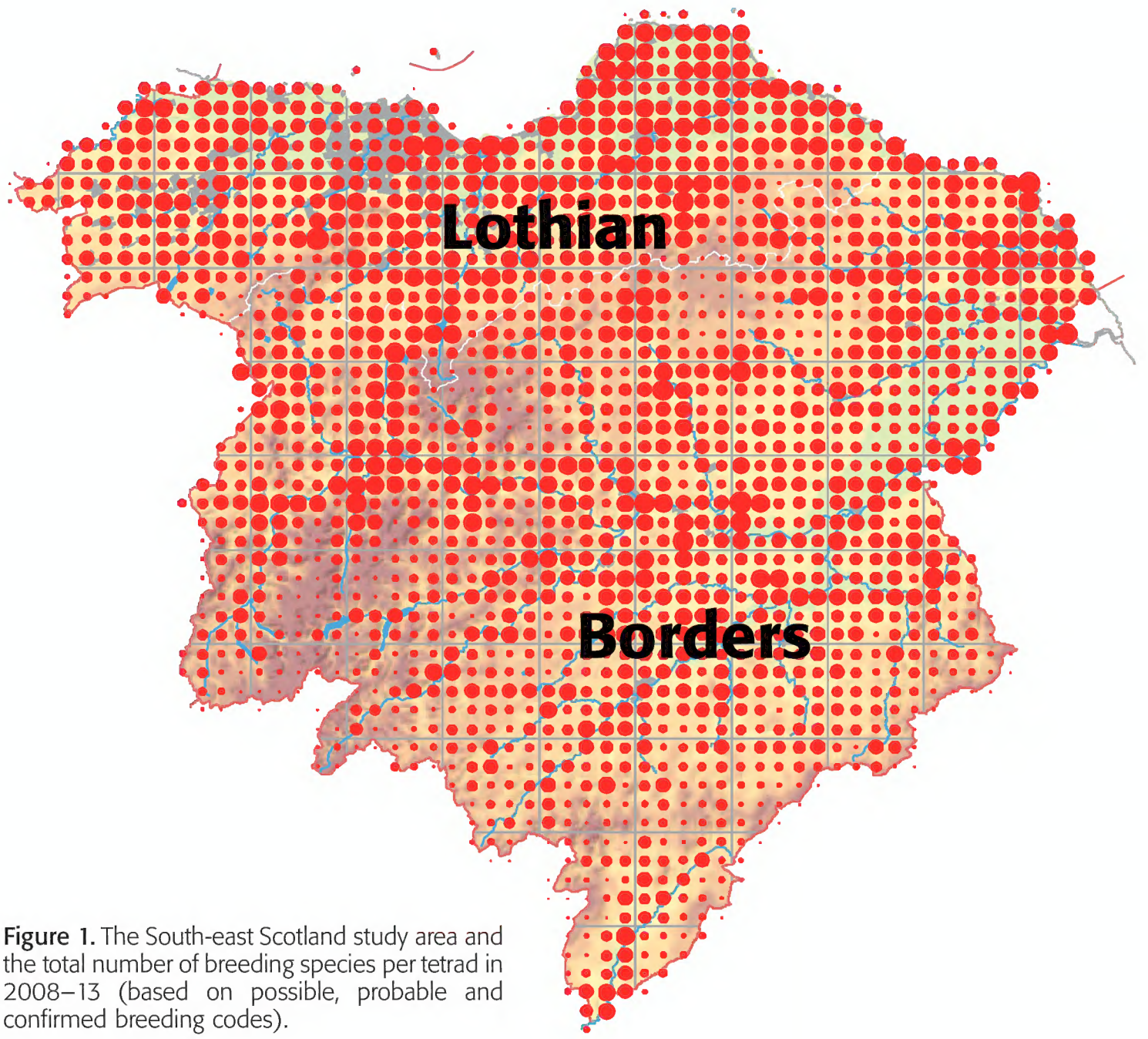

Figure 1. The South-east Scotland study area and the total number of breeding species per tetrad in 2008–13 (based on possible, probable and confirmed breeding codes).

The average number of breeding species per tetrad varied from 48 to 3 which was associated with altitude (Figure 2). The tetrads with the highest diversity were 91 breeding species in NT48Q (Aberlady Bay) in 1988–94 and 84 in NT96E (St Abb's Head) in 2008–13. Conversely, 11 part-tetrads had no breeding species in 2008–13 and the lowest number of species in a complete tetrad was three in NY49Q (Birny Fell - Black Grouse *Lyrurus tetrix*, Skylark *Alauda arvensis* and Meadow Pipit *Anthus pratensis*). Five was the lowest full-tetrad count in 1988–94 (NT66J Clints Dod - Red Grouse *Lagopus lagopus*, Snipe *Gallinago gallinago*, Curlew *Numenius arquata*, Skylark and Meadow Pipit).

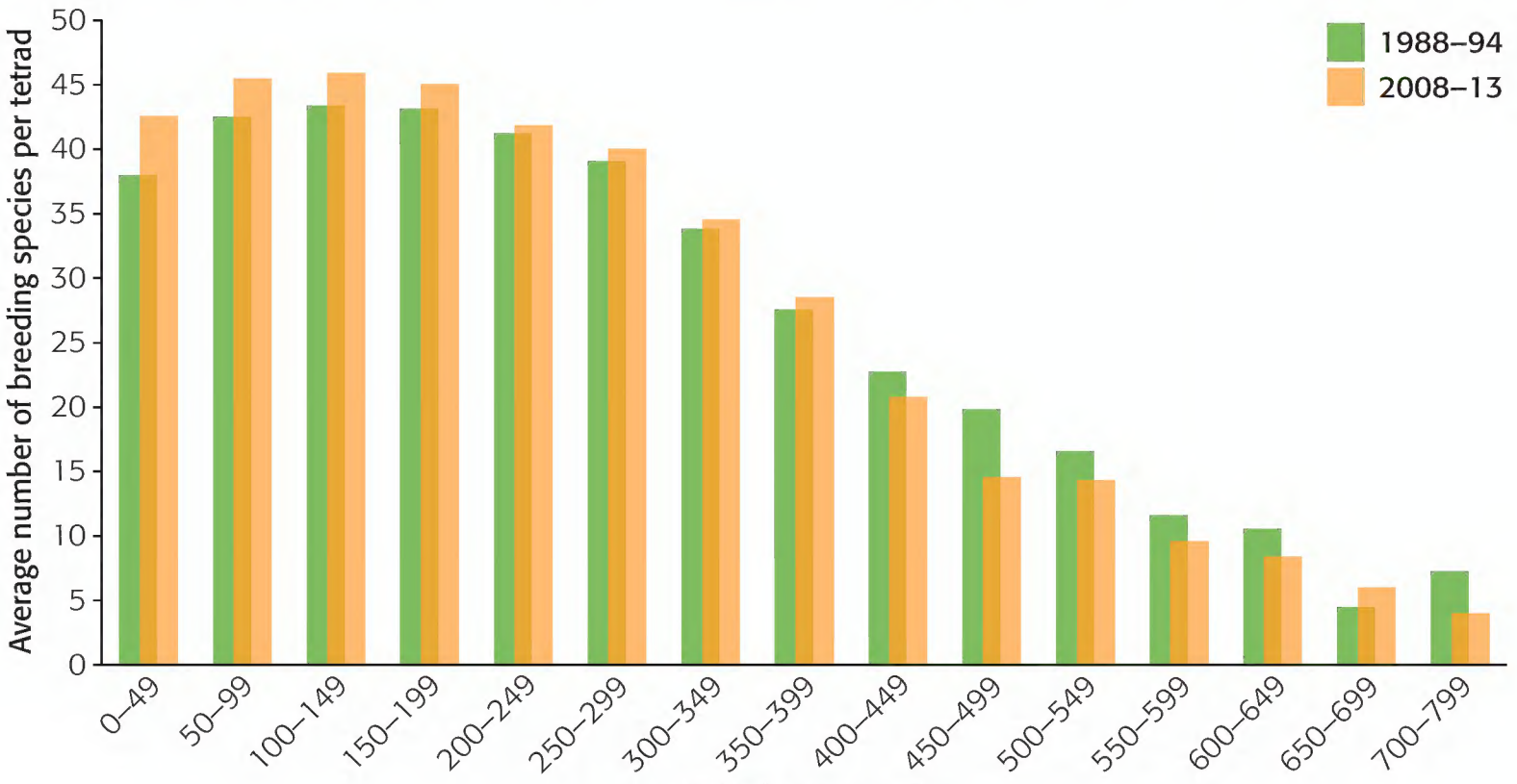

Figure 2. The average number of breeding species per tetrad in 1988–94 and 2008–13 by altitude.

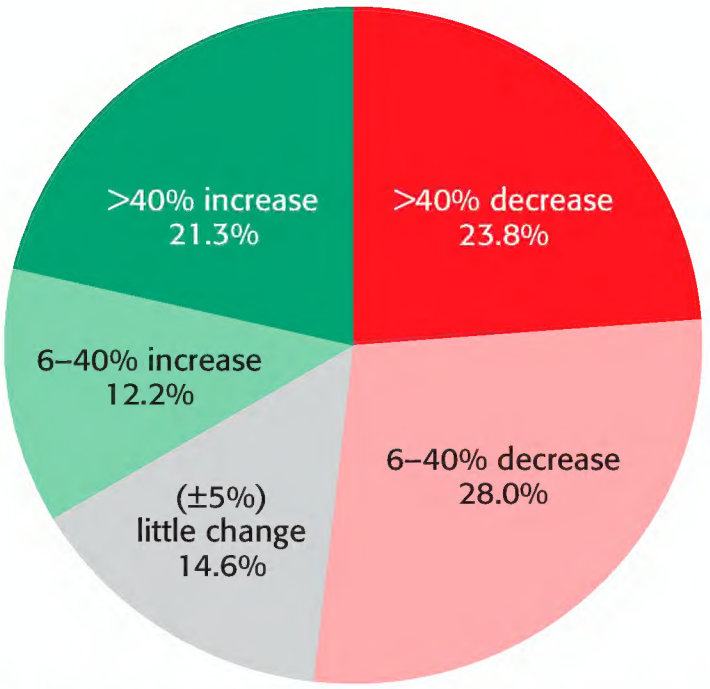

Figure 3. The extent to which the distribution of species breeding in South-east Scotland changed between 1988–94 and 2008–13. Change is measured by the percentage difference in the number of occupied tetrads in each survey period. The counts of tetrads in each atlas includes all three breeding categories for a species, but only a species with at least one *probable* or *confirmed* tetrad in either *Atlas* period is included.

Changes

Although it was to be expected that two atlases undertaken 20 years apart would document some change, it was surprising that so few species maintained stable ranges in the breeding season over that period. Between 1988–94 and 2008–13, less than 15% of breeding species were recorded in approximately the same number of tetrads (i.e. a change between -5% and +5%). And while a third (33.5%) of species recorded an increase in the number of occupied tetrads, a substantial 51.8% of species saw their breeding ranges contract (Figure 3). Balmer *et al.* (2013) used the same criteria, so direct comparisons can be made. Thus, in Britain over the equivalent 20-year period (1988–91 to 2007–11), 45% of all species increased their ranges by over 5%, 23% maintained their ranges (-5% to +5% change) and 32% showed a loss or range of over 5%. It is clear that South-east Scotland has suffered a much higher rate of losses and a lower rate of gains than Britain as a whole.

Changes by geographical area and by altitude

In terms of the geographic spread of apparent losses and gains, most areas recorded more species per tetrad in 2008–13 than in 1998–94 (Figures 4 & 5). Several areas, including the Moorfoots and lowland West Lothian, held more species per tetrad in 1988–94 than 2008–13. The largest number of gains were in lowland East Lothian and Edinburgh (Figure 5).

In terms of altitude, it is noticeable that higher areas (above 400 m) have experienced losses, whereas more species were recorded at lower elevations in 2008–13 than in 1988–94 (Figure 2).

Species with increasing breeding ranges

As noted above, 33.5% of all breeding species recorded in South-east Scotland in 2007–13 increased their ranges by at least 5% (Figure 3). Although we cannot directly extrapolate these differences to equivalent changes in breeding populations, here we use range change as a proxy for population change, an argument strengthened by our measurements being based on the relatively fine scale of the tetrad.

Based on the number of occupied tetrads, the two species with the greatest increase in breeding range in South-east Scotland over the study period were Buzzard and Chiffchaff (Table 2).

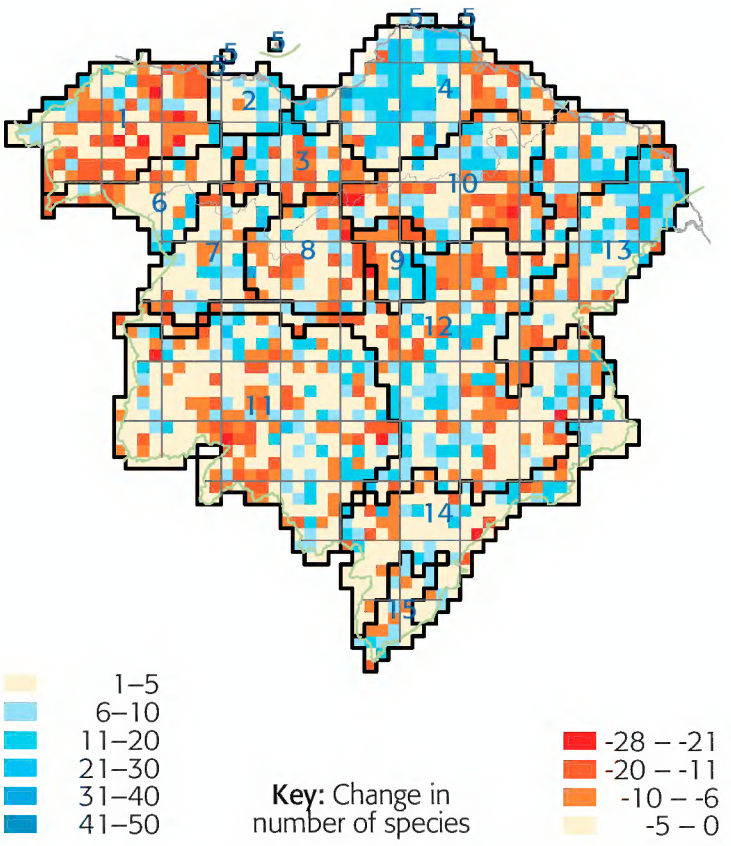

Figure 4. Change in the number of breeding species per tetrad between 1988–94 and 2008–13 based on records of *probable* and *confirmed* breeding. Key to areas: 1 - lowland West Lothian, 2 - Edinburgh, 3 - lowland Midlothian, 4 - lowland East Lothian, 5 - Forth Islands, 6 - Pentlands, 7 - uplands north of Peebles, 8 - Moorfoots, 9 - hills around Lauder, 10 - Lammermuirs, 11 - western Borders uplands, 12 - lowland Borders, 13 - the Merse, 14 - southern Borders uplands, 15 - Liddlesdale.

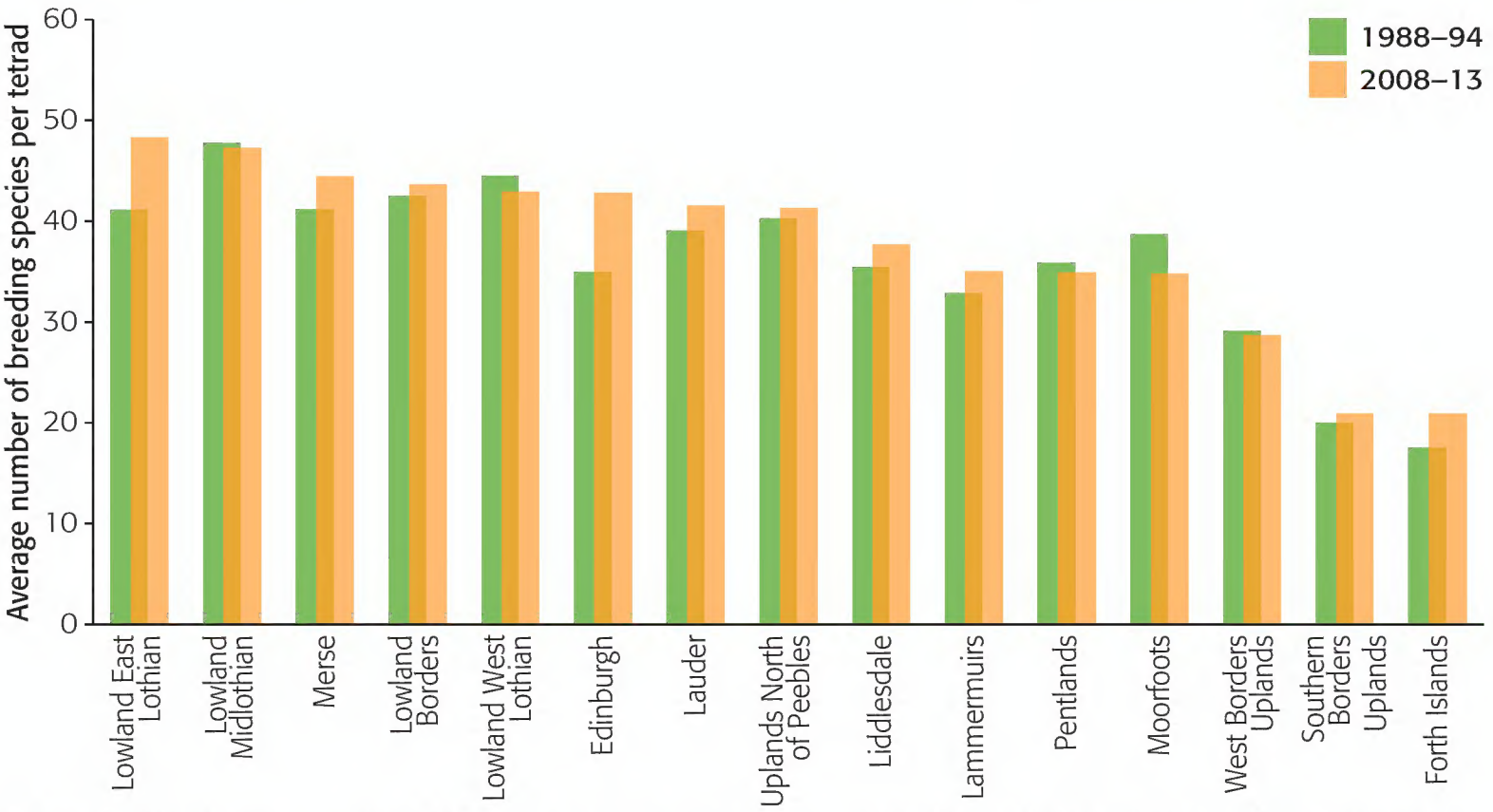

Figure 5. The average number of breeding species per tetrad in 1988–94 and 2008–13 by region. The areas are plotted in order of decreasing species totals in 2008–13. Only tetrads with more than 40% of their area in South-east Scotland are included. Refer to Figure 4 for area key.

Table 2. The 20 species with the greatest percentage increase in breeding range based on the number of tetrads with breeding evidence for species with more than ten occupied tetrads in 2008–13. The absolute change in the number of tetrads is also given.

	Number of tetrads with breeding evidence 1988–94	Number of tetrads with breeding evidence 2008–13	Percentage change in the number of tetrads with breeding evidence between 1988–94 and 2008–13	Change in the number of tetrads with breeding evidence between 1988–94 and 2008–13
Nuthatch *Sitta europaea*	8	466	+5725	458
Raven *Corvus corax*	34	357	+950	323
Stonechat *Saxicola rubicola*	41	366	+793	325
Osprey *Pandion haliaetus*	9	51	+467	42
Greylag Goose *Anser anser*	45	238	+429	193
Red-legged Partridge *Alectoris rufa*	71	356	+401	285
Jay *Garrulus glandarius*	87	419	+382	332
Canada Goose *Branta canadensis*	19	70	+268	51
Buzzard *Buteo buteo*	444	1531	+245	**1087**
Chiffchaff *Phylloscopus collybita*	375	969	+158	**594**
Great Black-backed Gull *Larus marinus*	5	11	+120	6
Lesser Black-backed Gull *Larus fuscus*	21	46	+119	25
Sand Martin *Riparia riparia*	177	381	+115	204
Shelduck *Tadorna tadorna*	46	99	+115	53
Water Rail *Rallus aquaticus*	29	62	+114	33
Hybrid Hooded x Carrion Crow *Corvus cornix* x *corone*	27	57	+111	30
Great Spotted Woodpecker *Dendrocopos major*	505	963	+91	458
Barn Owl *Tyto alba*	198	376	+90	178
Magpie *Pica pica*	360	661	+84	301
Reed Bunting *Emberiza schoeniclus*	471	857	+82	386

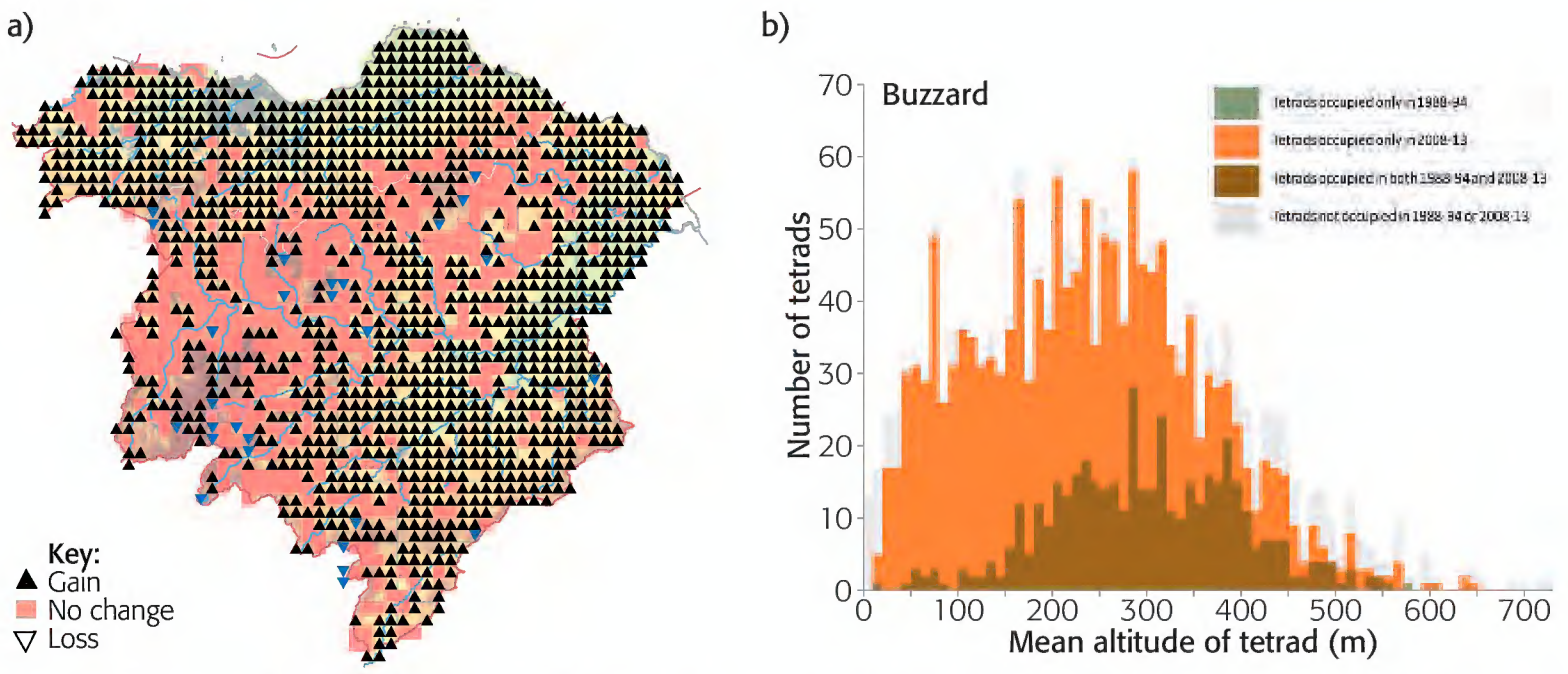

Figure 6. Change in breeding distribution of Buzzards between 1988–94 and 2008–13 shown (a) geographically by tetrad and (b) by altitude. Gain = 1,114, no change = 417, loss = 27. The histogram (as in subsequent figures) illustrates the altitudes where there have been more losses than gains (green), more gains than losses (orange) and no change (brown).

Formerly a very scarce bird in South-east Scotland, the Buzzard is now almost ubiquitous (Figure 6a). The only absences in 2008–13 were in truly urban areas, on the highest hilltops (which lack nest sites), some of the heavily keepered lower margins of the Lammermuirs and some areas of extensive conifer plantations with little open hunting terrain (Murray *et al.* 2019). The elevation change chart (Figure 6b) reinforces the Buzzard's overall shift from a hill species to one occupying 87% of all tetrads in South-east Scotland.

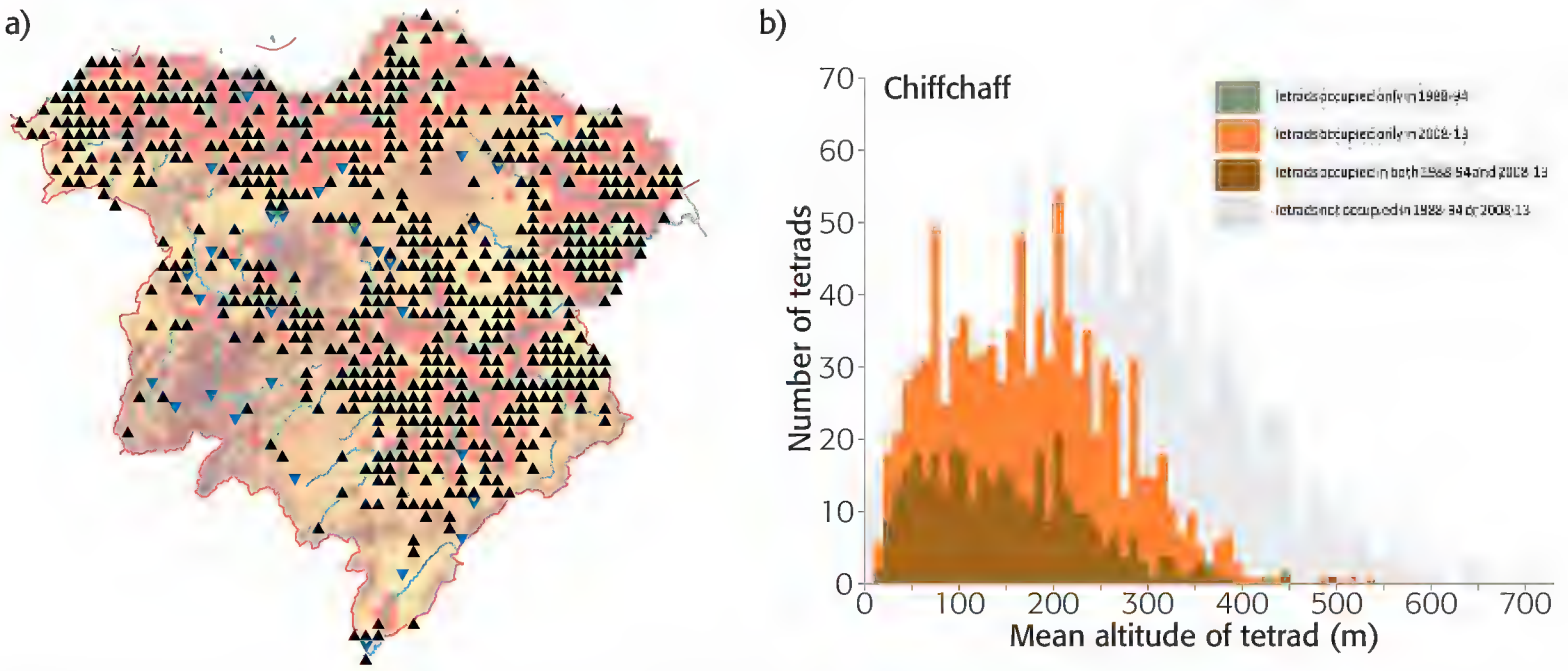

Figure 7. Change in the breeding distribution of Chiffchaffs between 1988–94 and 2008–13 shown (a) geographically by tetrad and (b) by altitude. Gain = 624, no change = 345, loss = 30.

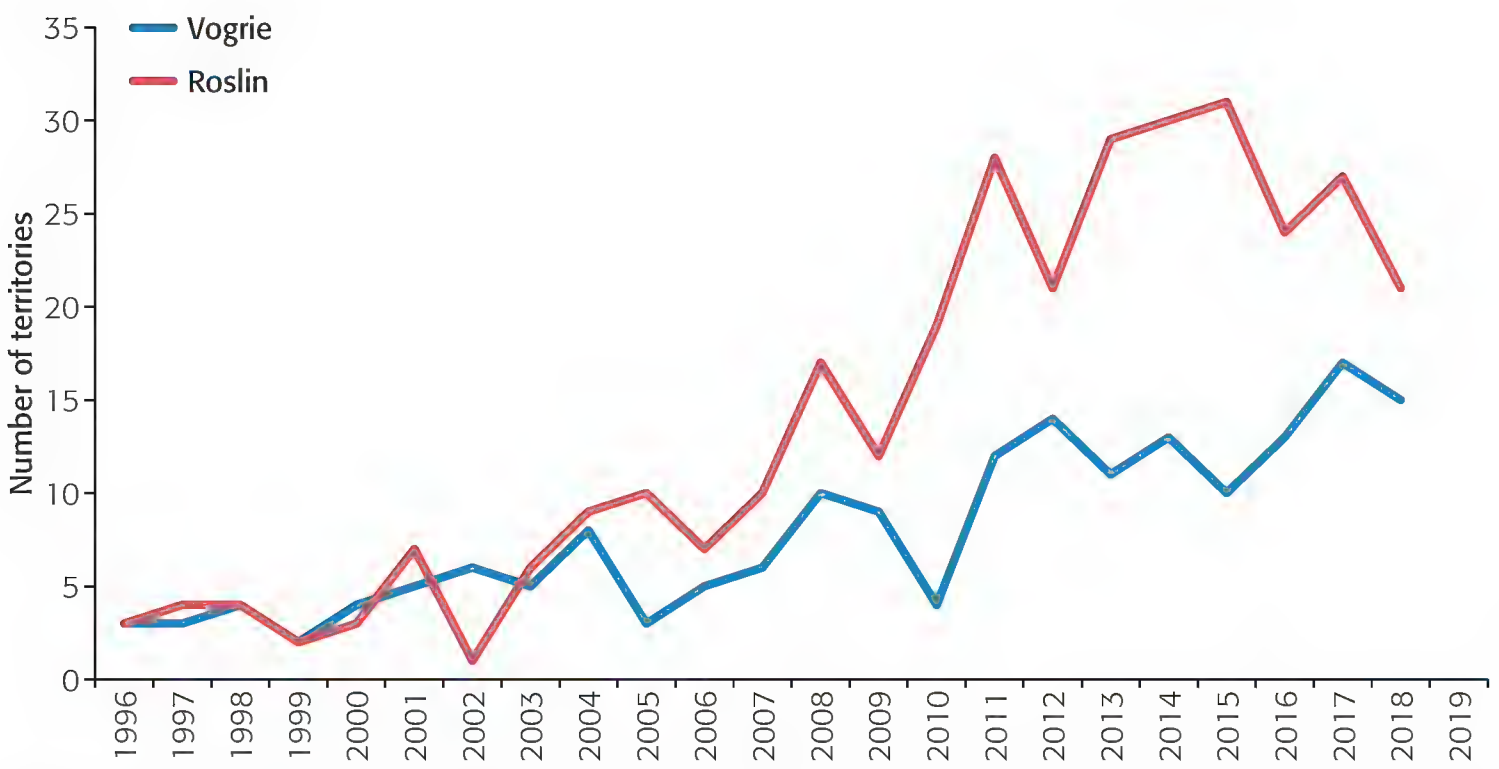

Figure 8. Chiffchaff territory counts at Vogrie Country Park and Roslin Glen SWT reserve, Lothian, 1996–2019 (data provided by Neville Crowther and Kevin Ingleby).

Breeding Chiffchaffs were scarce in South-east Scotland 40 years ago (Andrews 1986, Murray 1986) with a general increase noted from the 1990s accelerating in the early 2000s and now levelling off. This is exemplified by CBC-type counts from two sites in Lothian (Figure 8). The Chiffchaff has expanded its range by infilling gaps in its former range and spreading up river valleys (Figure 7a). This change is also illustrated in the elevation change chart (Figure 7b).

In terms of percentage increase in occupied tetrads, Nuthatch heads Table 2. Since 1988–94, the Nuthatch (with a 5,725% increase in breeding season range) has colonised much of lowland South-east Scotland. From eight occupied tetrads in 1988–94, the population has 'exploded' to be found in 469 tetrads in 2008–13 - with an estimated population of 2,250–3,000 territories (Murray *et al.* 2019).

Other woodland species that have increased in range are the Great Spotted Woodpecker (+91%), Chiffchaff (+158%) and Blackcap *Sylvia atricapilla* (+69%). The latter two species are both short-

distance migrants coming to South-east Scotland to breed. However, by no means all woodland species have increased (see below).

Four species were recorded breeding in South-east Scotland for the first time during 2008–13 (Table 3). All of these have been expanding their ranges in the last 40 years, as evidenced by UK change maps in Balmer *et al.* (2013). Other species, such as Little Egret *Egretta garzetta* and Mediterranean Gull *Ichthyaetus melanocephalus*, may follow. Pintail is also listed in Table 3 as it did not breed in South-east Scotland in 1988–94. There are historical breeding records; the last though was as long ago as 1912 (Kirke Nash 1935).

Table 3. Species where breeding was *confirmed* in 2008–13, but not in 1988–94.

	Number of tetrads with confirmed breeding records in 2008-13
Pintail *Anas acuta*	2 (1 site)
Osprey *Pandion haliaetus*	15
Little Ringed Plover *Charadrius dubius*	6
Reed Warbler *Acrocephalus scirpaceus*	1
Black Redstart *Phoenicurus ochruros*	2

Three species previously targeted by gamekeepers have made a comeback in South-east Scotland. These are Raven (+950%), Jay (+382%) and Buzzard (+245%). In 2008–13, the latter was the second most widespread non-passerine in South-east Scotland (after Woodpigeon *Columba palumbus*). Ospreys (+467%) and Goshawks *Accipiter gentilis* (+45%) also did well locally. Ospreys first bred in the study area in 1998 (*Borders Bird Report* for 1998).

Several migrants showed increases, sometimes a revival to former levels of abundance, but also indications of colonisation or consolidation of earlier colonisation of the area. Whitethroats *Sylvia communis* (+33%) and Sand Martins (+115%) showed a return to former levels, with the latter showing a range expansion into smaller colonies along small upland burns. The Little Ringed Plover is a new colonist with breeding first recorded in 2003 (*Lothian Bird Report* for 2003), but has as yet only established a toehold in the region.

Some species have increased with the assistance of humans. Red-legged Partridges (+401%) are now being released for shooting in much the same way as Pheasants *Phasianus colchicus* have been for many decades, but the vegetation and climate are unsuitable for the establishment of a self-sustaining population in the hills where most are released. Greylag Geese (+429%) have taken to feeding in arable areas and have benefited from the widespread digging of small shooting ponds in the uplands and irrigation ponds in agricultural areas. Mute Swans (+76%), too, have increased to the extent that most suitable ponds hold at least one pair - no doubt in part supported by the provision of food in towns and cities.

Some trends noted in Murray *et al.* (1998) have been reversed, none more dramatically than that of the Tree Sparrow. After a long period of decline, Tree Sparrows occupied 75% more tetrads in 2008–13 than 20 years previously. Also, Reed Buntings were noted as having declined between 1968–72 and 1988–91, but 83% more tetrads were occupied in 2008–13 than 1988–94.

Stable breeding season ranges

The distribution of many of our common resident species (almost 15% of all species, Figure 3) has changed little over the past 20 years, for example Wren *Troglodytes troglodytes* (-5%), Dunnock *Prunella modularis* (-2%), Blackbird *Turdus merula* (-1%), Robin *Erithacus rubecula* (-1%), Chaffinch *Fringilla coelebs* (0%) and Woodpigeon (0%). Such stability may mask population changes if species are occurring in the same areas but at higher or lower breeding densities. In some cases, there have been local gains and losses that have cancelled each other out in terms of tetrad totals (e.g. Mistle Thrush *Turdus viscivorus*, Goldcrest *Regulus regulus* and Lesser Redpoll *Acanthis cabaret*).

The Chaffinch map illustrates a species whose range has remained stable over the study period (Figure 9). Isolated losses and gains may reflect coverage issues, but clusters of increases around the Lammermuirs and decreases in the Tweedsmuir Hills (Figure 9) may reflect real local trends.

Figure 9. Change in the breeding distribution of Chaffinches between 1988–94 and 2008–13. Gain = 42, no change = 1584, loss = 36.

The relative difficulty of finding *confirmed* breeding evidence in some species in certain areas is also suggestive of lower breeding densities in 2008–13 compared to 1988–94. Thus, in some cases, an apparently stable range over the 20 years is countered by a reduction in the percentage of tetrads with *confirmed* breeding that may reflect lower densities and hence a reduction in population. Of the 22 species which showed a 5% or less change in range, a reduction in the percentage of tetrads showing *confirmed* breeding was recorded in 20. For example, Stock Dove *Columba oenas* maintained its breeding range (0% change), but *confirmed* breeding was recorded in 16% fewer tetrads in 2008–13 than in 1988–94. In a further example, Song Thrush *Turdus philomelos* showed a 7% decrease in range but a 22% reduction in the number of tetrads recording confirmed breeding. The possible link between population decline and a decrease in breeding confirmation should be seen against an overall background decrease in levels of proof of breeding in 2008–13 which may, in part, have resulted from atlas methodologies (see above).

Table 4. The 20 species with the greatest percentage reductions in breeding range based on the number of tetrads with breeding evidence for species with more than 10 occupied tetrads in 1988–94. The absolute change in the number of tetrads is also given.

	Number of tetrads with breeding evidence 1988–94	Number of tetrads with breeding evidence 2008–13	Percentage change in the number of tetrads with breeding evidence between 1988–94 and 2008–13	Change in the number of tetrads with breeding evidence between 1988–94 and 2008–13
Corn Bunting *Emberiza calandra*	38	1	-97	37
Pied Flycatcher *Ficedula hypoleuca*	81	4	-95	77
Little Owl *Athene noctua*	17	4	-94	13
Dotterel *Charadrius morinellus*	11	1	-91	10
Ruddy Duck *Oxyura jamaicensis*	13	2	-85	11
Marsh Tit *Poecile palustris*	65	11	-83	54
Dunlin *Calidris alpina*	39	7	-82	32
Wood Warbler *Phylloscopus sibilatrix*	147	27	-82	120
Short-eared Owl *Asio flammeus*	291	64	-78	227
Hawfinch *Coccothraustes coccothraustes*	18	4	-78	14
Common Tern *Sterna hirundo*	17	5	-71	12
Pochard *Aythya ferina*	30	10	-70	20
Redshank *Tringa totanus*	413	133	-68	**280**
Grey Partridge *Perdix perdix*	788	304	-61	**484**
Woodcock *Scolopax rusticola*	300	117	-61	183
Fieldfare *Turdus pilaris*	38	14	-61	24
Ringed Plover *Charadrius hiaticula*	101	43	-57	58
Wigeon *Mareca penelope*	32	15	-53	17
Golden Plover *Pluvialis apricaria*	231	114	-51	117
Black-headed Gull *Chroicocephalus ridibundus*	86	45	-48	41
Ring Ouzel *Turdus torquatus*	192	102	-47	90

Species with declining breeding season ranges

The range of over half of all breeding species recorded in South-east Scotland in 2007–13 had decreased by at least 5%, with almost a quarter declining by more than 40% (Figure 3). There is clearly pressure on many groups of birds in a diverse range of habitats. Murray *et al.* (2019) showed that the most severe declines were recorded in some farmland species, most breeding waders, some trans-Saharan migrants and some seabirds and birds of prey.

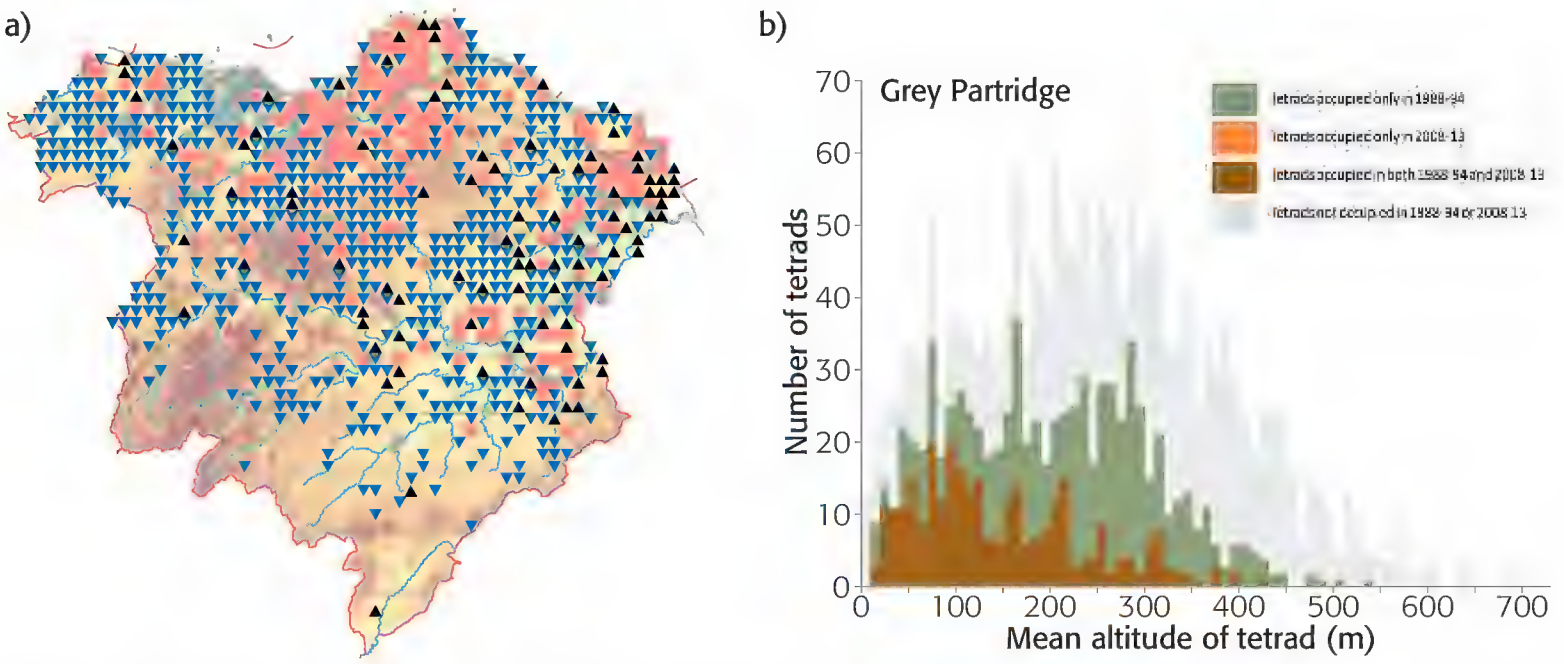

Figure 10. Change in the breeding distribution of Grey Partridges between 1988–94 and 2008–13 shown (a) geographically by tetrad and (b) by altitude. Gain = 91, no change = 213, loss = 575.

Based on the number of apparently 'lost' tetrads, the two species with the greatest retraction in breeding range in South-east Scotland over the study period were Grey Partridge and Redshank (Table 4).

There has been a substantial reduction in the breeding range of Grey Partridge between 1988–94 and 2008–13 (Figure 10). Most significantly, the upland fringes (above 200 m) are now virtually devoid of Grey Partridges, leaving two remaining clusters - in East Lothian and Berwickshire. Given the species' preference for arable farmland, the most obvious land use change has been reduced cereal growing in the areas showing losses. Upland pastoral farming has become increasingly specialized in recent decades, farmers concentrating on growing silage and buying in grain-based supplementary winter feed, rather than growing it *in situ*.

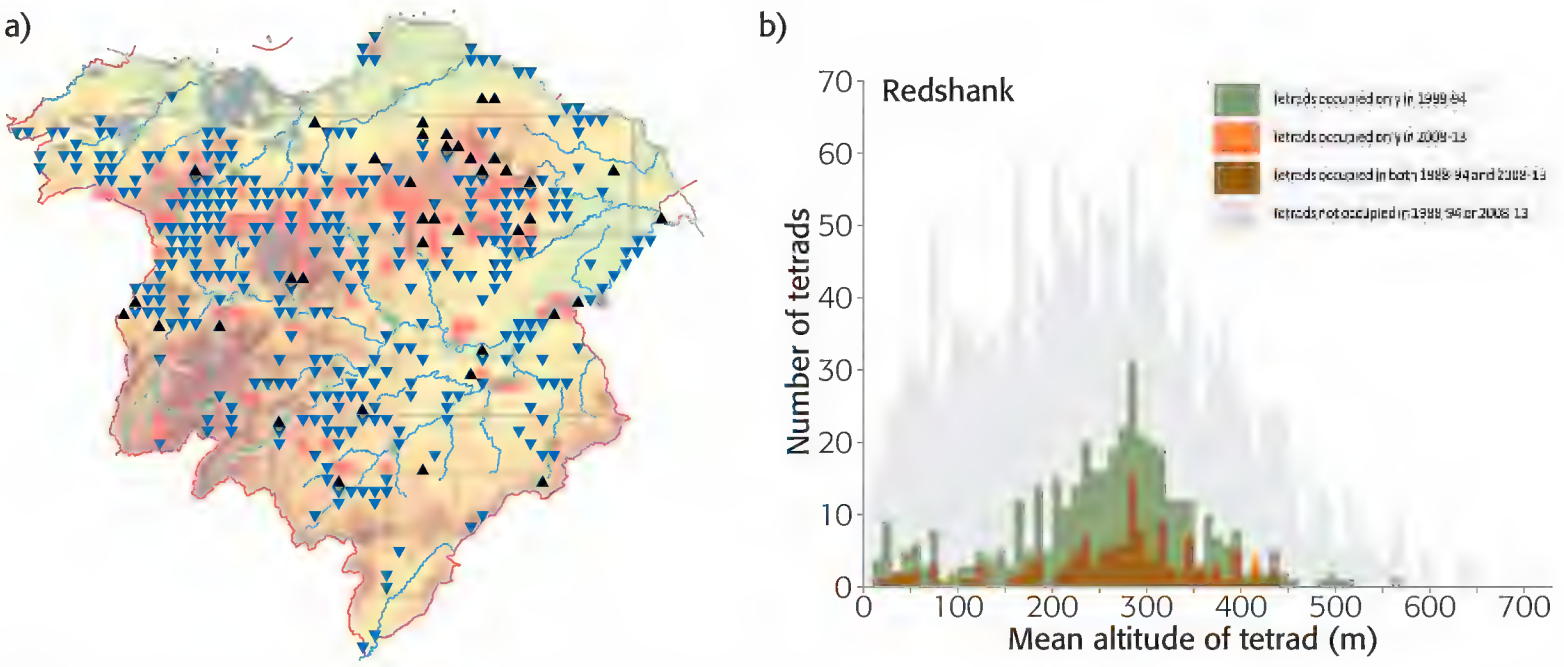

Figure 11. Change in the breeding distribution of Redshanks between 1988–94 and 2008–13 shown (a) geographically by tetrad and (b) by altitude. Gain = 39, no change = 94, loss = 319.

The Redshank population has retreated to a few core areas with much of the upland margins now deserted (Figure 11). Also, the coastal, and in particular the saltmarsh-breeding population, has all but vanished in the study area, with a tiny population at Aberlady Bay all that remains.

Some species show little if any change at the 10-km level but this masks what is happening at tetrad scale. Spotted Flycatcher *Muscicapa striata*, which has lost 24% of its former range at tetrad level (mainly at lower altitudes), is an example, as its presence in some 10-km squares is now based on very few pairs (Murray *et al.* 2019). Balmer *et al.* (2013) indicate that the relative abundance of species such as Cuckoo *Cuculus canorus* and Willow Warbler *Phylloscopus trochilus* has increased in Scotland relative to areas of southern Britain. The Cuckoo is clearly on the decline in South-east Scotland, while the range of Willow Warbler has increased; subjective feedback from fieldworkers on the latter, however, suggest that the density of singing Willow Warblers is lower than it was in 1988–94.

Changes in breeding species assemblages

Waders and hill-fringe species

Perhaps the most significant change revealed by Murray *et al.* (2019) is the loss of breeding waders in South-east Scotland (Figure 12). By 1988–94, many parts of lowland Lothian and Borders had already lost species such as Lapwing *Vanellus vanellus* and Snipe as areas of what is now high-quality arable land had been drained and ploughed. Since then we have seen losses from upland and hill-fringe areas of not only Lapwing and Snipe but also Curlew and Redshank. These losses are noticeable at the tetrad scale (Murray *et al.* 2019) and were also apparent at the 10-km scale across many parts of Britain and Ireland (Balmer *et al.* 2013). Taylor & Grant (2004) noted a severe decline in the number of breeding Lapwings following increased agricultural intensification near West Linton, Borders, between 1980 and 2002.

Plate 3. Redshank, Musselburgh, Lothian, March 2015. © *Ian Andrews*

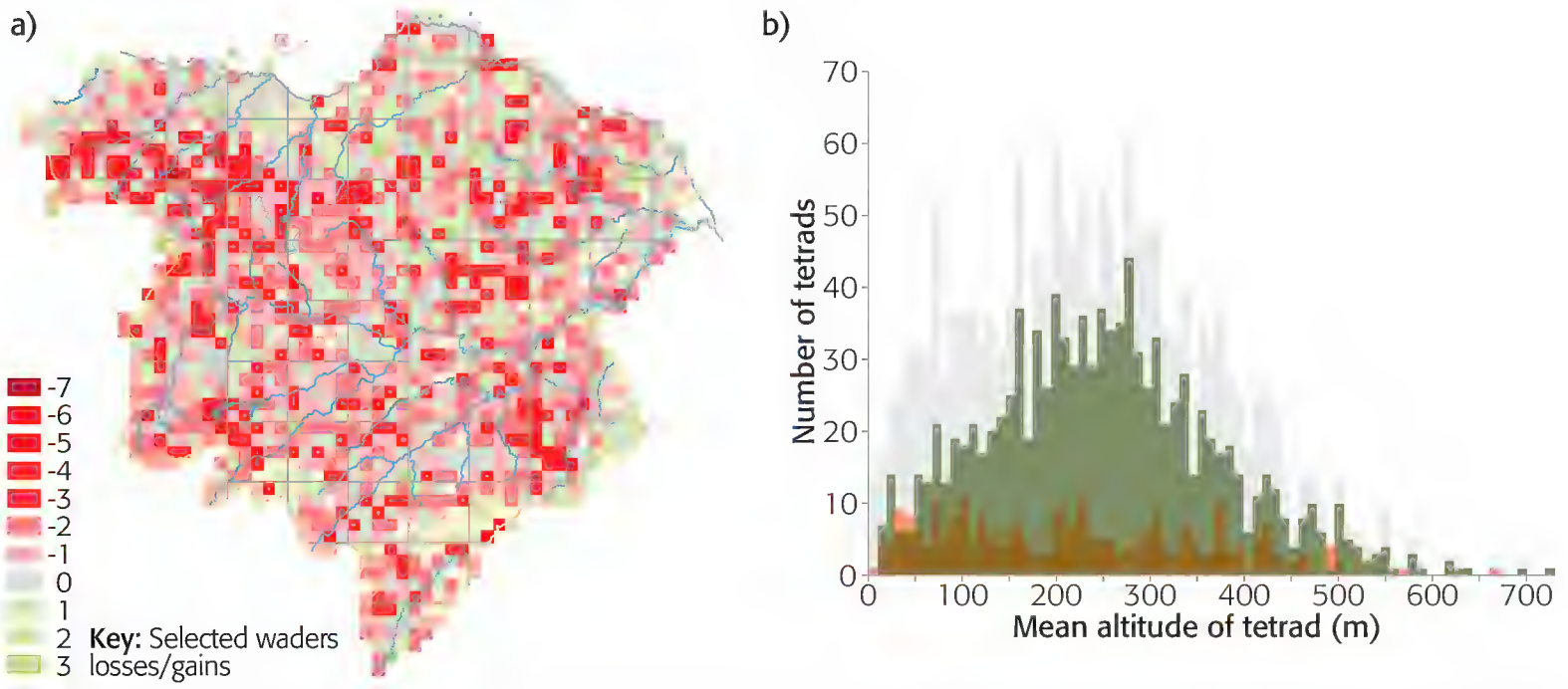

Figure 12. Change in the number of a selection of breeding waders per tetrad between 1988–94 and 2008–13 (*probable* and *confirmed* breeding categories only) shown (a) geographically by tetrad and (b) by altitude: Oystercatcher *Haematopus ostralegus*, Ringed Plover, Golden Plover, Lapwing, Dunlin, Snipe, Woodcock, Curlew, Redshank and Common Sandpiper *Actitis hypoleucos*. Tetrads with a net gain in the number of breeding waders between 1988-94 and 2008-13 are plotted in orange, tetrads with a net loss are plotted in green. The grey colour indicates tetrads without any waders or with no change in the number of breeding waders. Altitude bands where there are more losses than gains result in a green colour and more gains than losses show as orange.

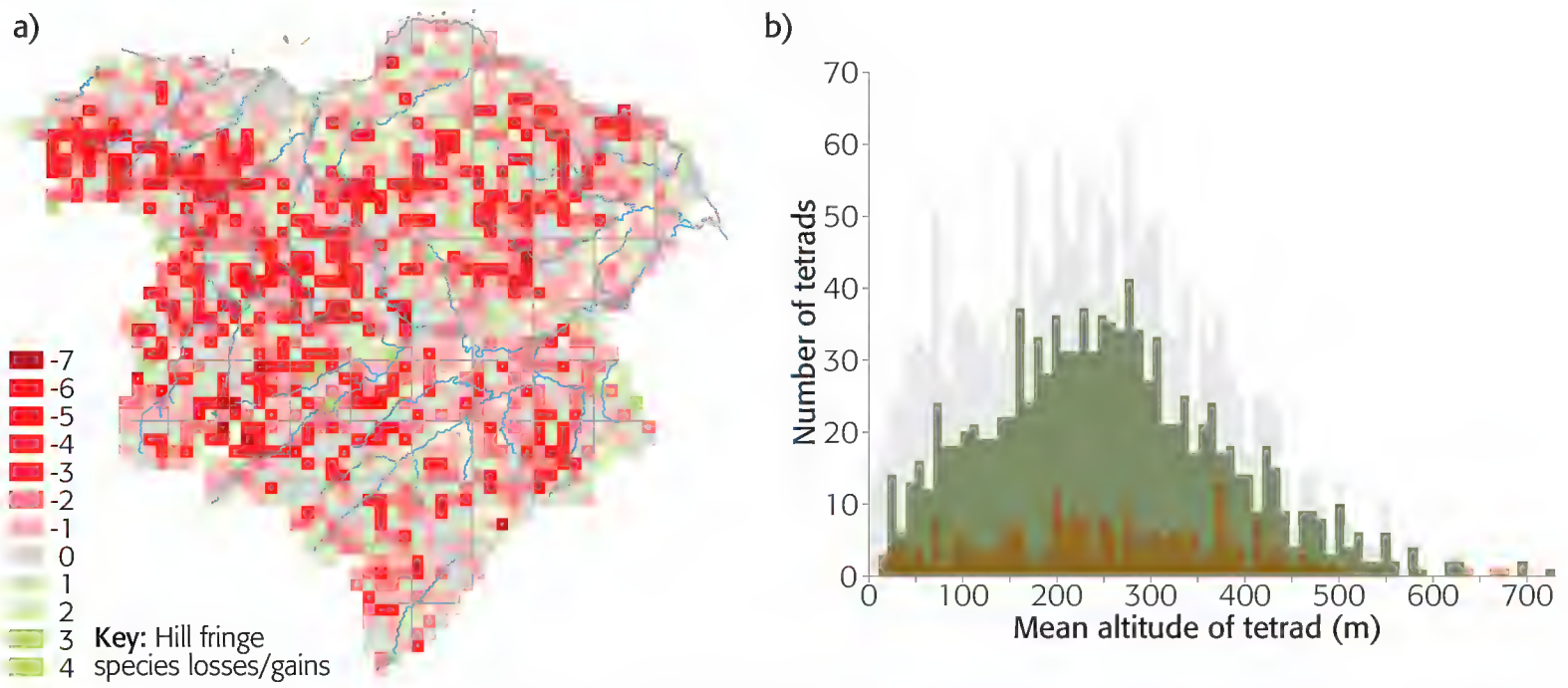

Figure 13. Change in the number of a selection of breeding hill-fringe species per tetrad between 1988–94 and 2008–13 (*probable* and *confirmed* breeding categories only) shown (a) geographically by tetrad and (b) by altitude: Merlin *Falco columbarius*, Red Grouse, Black Grouse, Golden Plover, Lapwing, Snipe, Curlew, Redshank, Meadow Pipit, Whinchat *Saxicola rubetra*, Wheatear *Oenanthe oenanthe* and Ring Ouzel *Turdus torquatus*.

Farmland species

Many species that were once characteristic of our farmland ecosystems have declined markedly or been lost altogether (Figure 14); these include Grey Partridge (-61%), Lapwing (-38%) and Yellowhammer *Emberiza citrinella* (-20%). In Lothian, the final stage of the Corncrake's *Crex crex* decline, first noted about 1910/15, took place c.1955 (Andrews 1986). In Borders, the last breeding was probably before the late 1960s (Murray 1986). The last Corn Buntings on territory were in 2002 (Lothian) and 2014 (Borders). Figure 14 shows that losses of farmland species have been predominant above *c.* 125m and greatest in the 250–350 m altitude range.

Seabirds and coastal species

Birds breeding on South-east Scotland's 'accessible coastline' (rather than on the cliffs and islands), much of which is in Lothian, have suffered markedly probably from the increased recreational use of the beaches. Species such as Eider *Somateria mollissima*, Ringed Plover, Common Tern *Sterna hirundo*, Arctic Tern *Sterna paradisaea* and Little Tern *Sternula albifrons* and coastal nesting Shelducks *Tadorna tadorna*, all of which formerly found quiet spots to nest along the coast, now

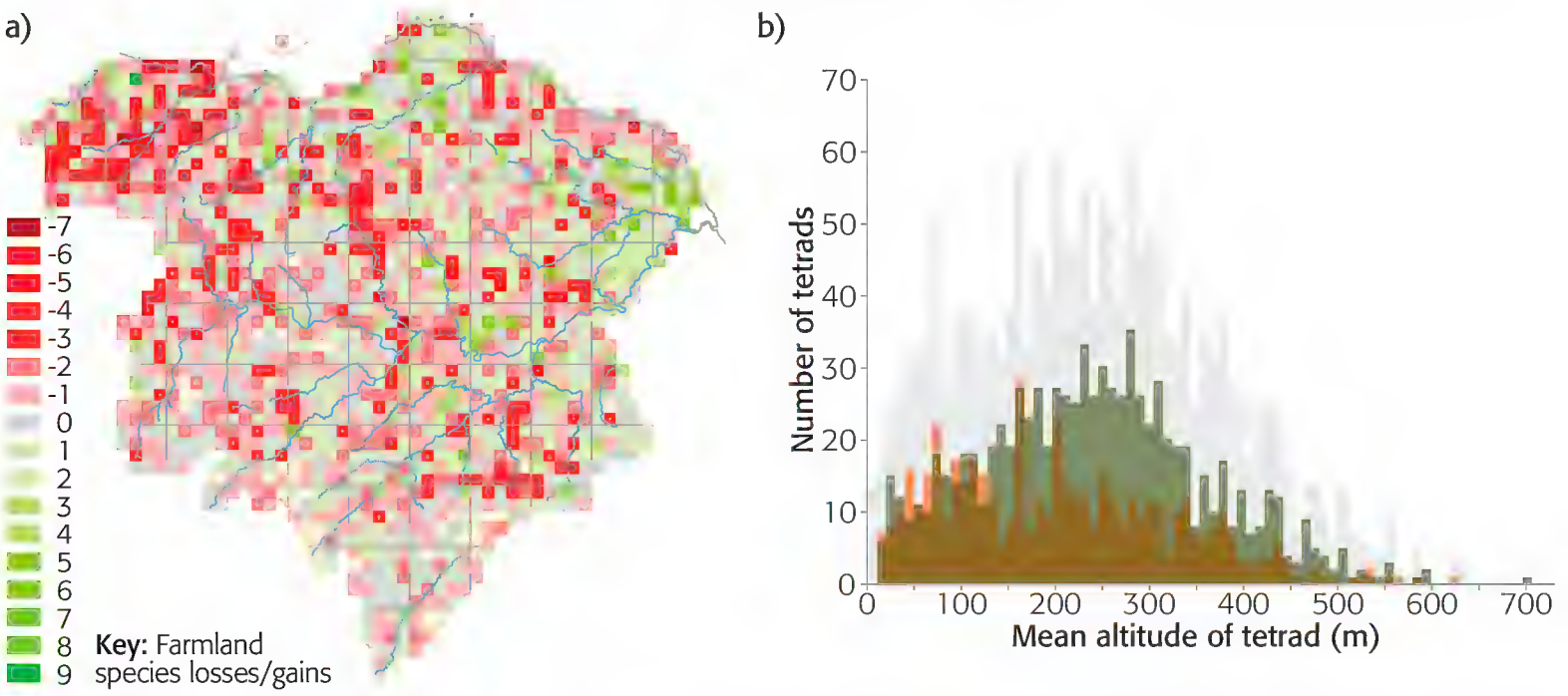

Figure 14. Changes in the number of breeding farmland species per tetrad between 1988–94 and 2008–13 (*probable* and *confirmed* breeding categories only) shown (a) geographically by tetrad and (b) by altitude. The species subset is: Grey Partridge (-61%), Quail *Coturnix coturnix* (+40%), Oystercatcher (-1%), Lapwing (-38%), Turtle Dove *Streptopelia turtur* (+200%, but sample is small), Yellow Wagtail *Motacilla flava* (-24%), Skylark (-10%), Grasshopper Warbler *Locustella naevia* (+5%), Lesser Whitethroat *Sylvia curruca* (-14%), Whitethroat (+33%), Tree Sparrow *Passer montanus* (+75%), Linnet *Linaria cannabina* (+3%), Yellowhammer (-20%), Reed Bunting (+82%) and Corn Bunting (-97%).

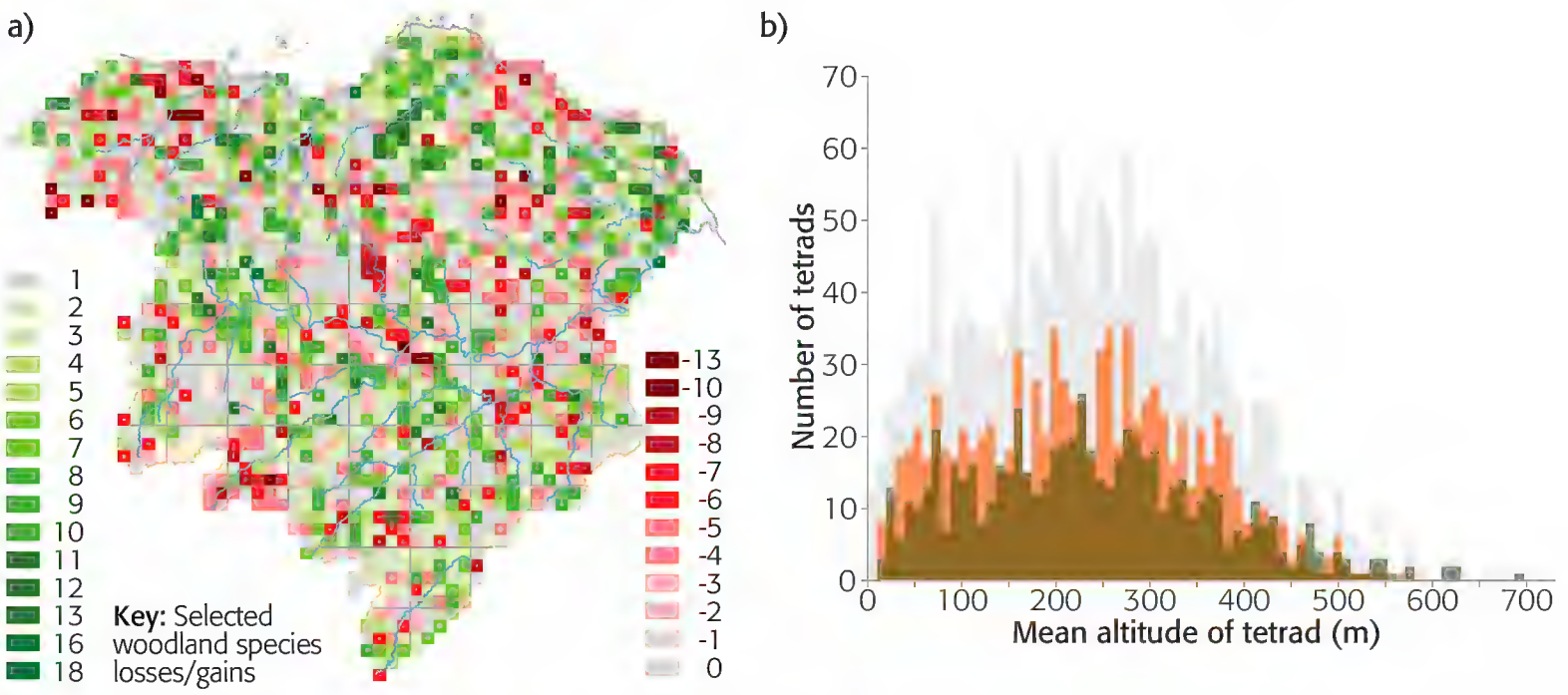

Figure 15. Change in the number of a selection of breeding woodland species per tetrad between 1988–94 and 2008–13 (*probable* and *confirmed* breeding categories only) shown (a) geographically by tetrad and (b) by altitude: Sparrowhawk *Accipiter nisus* (-9%), Buzzard (+245%), Stock Dove (+0%), Woodpigeon (+0%), Tawny Owl *Strix aluco* (-23%), Green Woodpecker (-41%), Great Spotted Woodpecker (+91%), Wren (-5%), Dunnock (-2%), Robin (-1%), Redstart *Phoenicurus phoenicurus* (-25%), Blackbird (-1%), Song Thrush (-7%), Mistle Thrush (-9%), Garden Warbler *Sylvia borin* (-7%), Blackcap (+69%), Wood Warbler (-82%), Chiffchaff (+158%), Willow Warbler (+3%), Goldcrest (-10%), Spotted Flycatcher (-24%), Pied Flycatcher (-95%), Long-tailed Tit *Aegithalos caudatus* (+36%), Marsh Tit (-83%), Willow Tit (lost), Coal Tit *Periparus ater* (+7%), Blue Tit *Cyanistes caeruleus* (+5%), Great Tit *Parus major* (+26%), Nuthatch (+5725%), Treecreeper *Certhia familiaris* (+17%), Jay (+382%), Rook *Corvus frugilegus* (+1%), Chaffinch (+0%), Greenfinch *Chloris chloris* (-3%), Goldfinch *Carduelis carduelis* (+49%), Siskin *Spinus spinus* (+43%), Lesser Redpoll (-50%), Crossbill *Loxia curvirostra* (+35%), Bullfinch *Pyrrhula pyrrhula* (+26%) and Hawfinch (-78%).

struggle to avoid repeated disturbance from walkers and in particular dogs off leads. Colonial nesting seabirds show very few changes in their distributions but this stability masks declines in the overall numbers of nesting pairs of some species at their traditional sites (Forth Seabird Group reports).

Wildfowl

Amongst breeding waterfowl, Wigeon and Black-necked Grebe *Podiceps nigricollis* no longer breed (indeed the latter no longer breeds anywhere in Scotland (Holling 2015)), and there have been declines in some other species, for example Coot *Fulica atra* (-34%) and Shoveler *Spatula clypeata* (-21%). Also, all indications are that the Pochard has been lost as a breeding species in South-east Scotland (-67%). The last Pochard broods were recorded in Borders in 2004 and in Lothian in 2008 (Lothian & Borders Bird Reports).

Woodland species

Several of our scarcer woodland species have declined so severely that their future in South-east Scotland is in doubt (Figure 15): Pied Flycatcher *Ficedula hypoleuca* (-95%), Marsh Tit (-83%), Wood Warbler (-82%), Hawfinch (-78%), Green Woodpecker *Picus viridis* (-41%) and Willow Tit *Poecile montanus* (lost). These losses contrast with increases in other species such as Great Spotted Woodpecker and Nuthatch.

Forestry is the primary land use across large areas of southern and south-western Borders and western West Lothian. Although some phases in the maturity of a forest favour certain species (e.g. Short-eared Owl and Willow Warbler during the scrub phase, Song Thrush in thicket stage and Tree Pipit *Anthus trivialis* in clear fell), there can be localised losses and gains until a more permanent mosaic becomes established. Since 1988–94, many areas of forestry have matured, been felled and subsequently replanted and a more diverse mosaic of habitats and forestry types is now more common. It is likely that as these forests develop further, we will see more changes to the avifauna of these areas.

Birds of prey

Murray *et al.* (2019) demonstrated the decline in the ranges of some birds of prey, such as Hen Harrier *Circus cyaneus*, Merlin (Heavisides *et al.* 2017) and Peregrine *Falco peregrinus*, in the uplands, and a lack of range expansion in these areas (contrasting with expansions elsewhere) for Goshawk and Buzzard.

Species lost from South-east Scotland

A total of 14 species bred in South-east Scotland in 1988–94 but were not confirmed breeding in 2008–13 (Table 5).

Table 5. List of species with *confirmed* breeding records in 1988–94, but with none in 2008–13.

	Number of tetrads with *confirmed* breeding records in 1988–94
Pied Flycatcher *Ficedula hypoleuca*	23
Wood Warbler *Phylloscopus sibilatrix*	10
Dunlin *Calidris alpina*	9
Wigeon *Mareca penelope*	5
Ruddy Duck *Oxyura jamaicensis*	4
Corn Bunting *Emberiza calandra*	4
Hawfinch *Coccothraustes coccothraustes*	3
Twite *Linaria flavirostris*	3
Sandwich Tern *Thalasseus sandvicensis*	2
Willow Tit *Poecile montanus*	2
Fieldfare *Turdus pilaris*	2
Red-necked Grebe *Podiceps grisegena*	1
Black-necked Grebe *Podiceps nigricollis*	1
Dotterel *Charadrius morinellus*	1

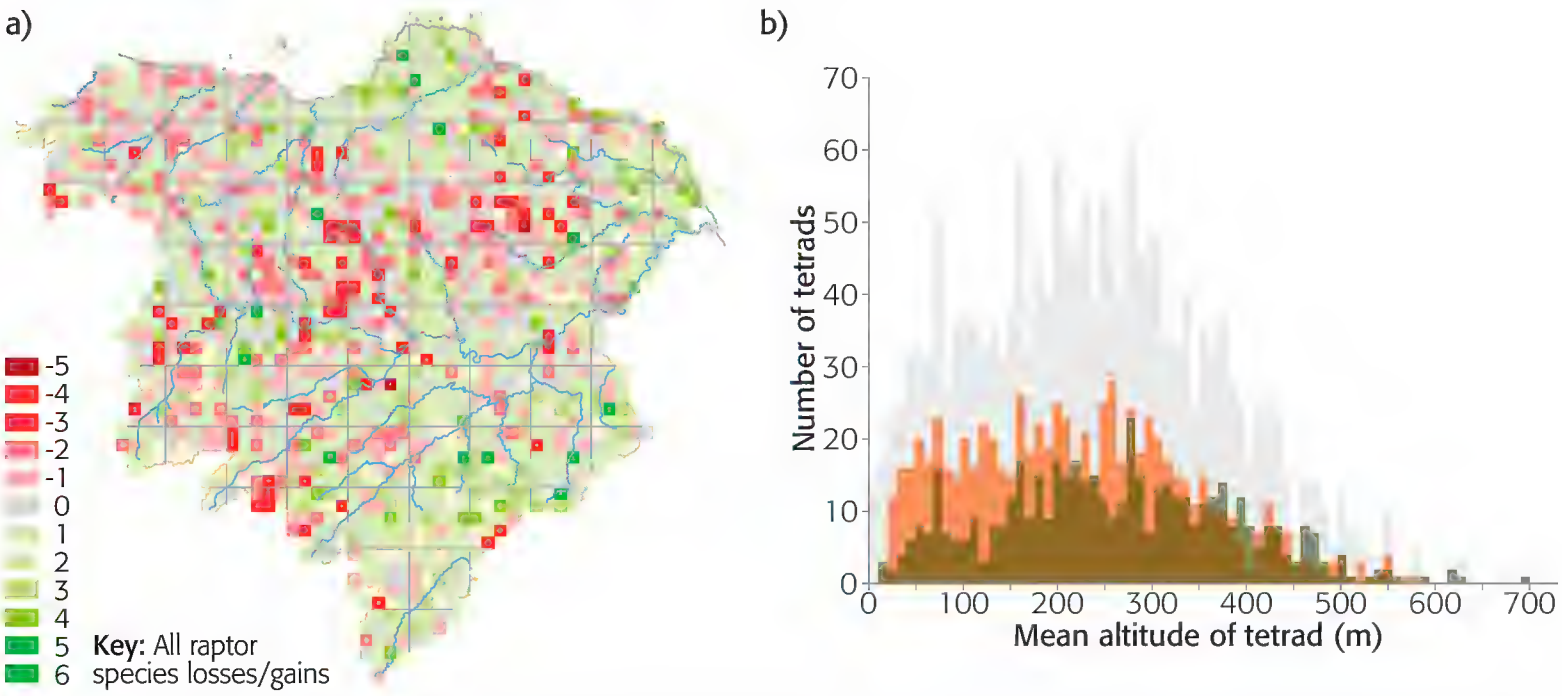

Figure 16. Change in the number of breeding raptors (including owls) per tetrad between 1988–94 and 2008–13 (*probable* and *confirmed* breeding categories only) shown (a) geographically by tetrad and (b) by altitude: Honey-buzzard *Pernis apivorus* (-50%), Red Kite *Milvus milvus* (gain), Marsh Harrier *Circus aeruginosus* (+150%), Hen Harrier (-30%), Goshawk (+45%), Sparrowhawk (-9%), Buzzard (+245%), Golden Eagle *Aquila chrysaetos* (confidential), Osprey (+467%), Barn Owl (+90%), Little Owl (-76%), Tawny Owl (-23%), Long-eared Owl *Asio otus* (-36%), Short-eared Owl (-78%), Kestrel (-24%), Merlin (-31%), Hobby *Falco subbuteo* (gain) and Peregrine (-22%).

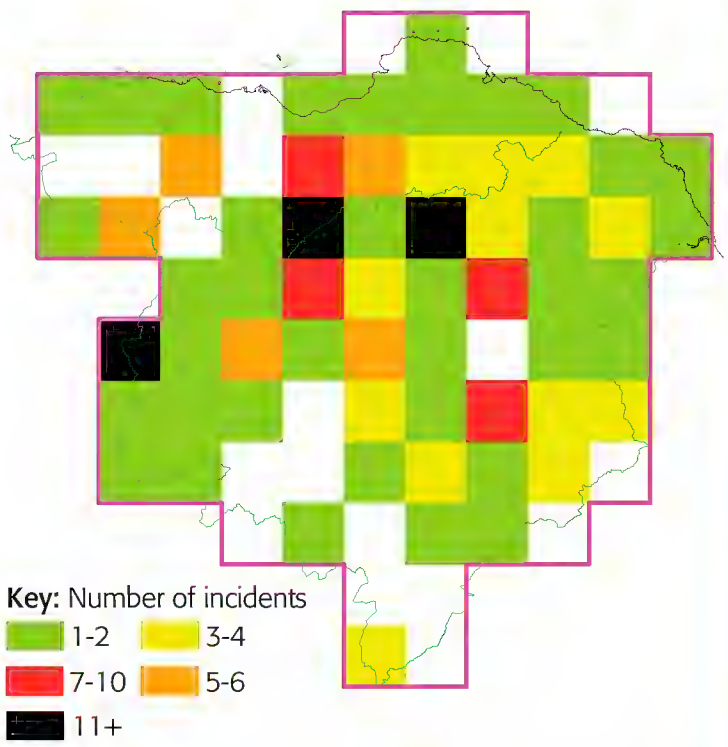

Figure 17. Number of confirmed birds of prey persecution incidents by 10-km square, 1990–2016 (source RSPB).

Discussion

The extensive range of species that occur in South-east Scotland reflects the underlying geology, altitudinal range and climate which lead to varied habitats and land use. The habitat mix in South-east Scotland features large areas of sheepwalk, grouse moor and forest in the uplands, and intensive arable cultivation in the lowlands with increasing

Plate 4. Long-eared Owl, Musselburgh, Lothian, May 2019. © *Ian Andrews*

urbanisation and a more mobile human population with increased leisure time, all of which may contribute to the greater range changes in this area compared to the national picture.

The *range* changes we have described imply that breeding *populations* will also have changed and, incorporating BBS-based breeding densities with the mapped distribution, Murray *et al.* (2019) found that this was often the case. These changes are discussed in the relevant species accounts in the book. In addition, Murray *et al.* (2019) also describe the variety of methods used to estimate bird populations, but the method combining range with breeding density was widely used for the commoner species.

Research into the declines in farmland species was reviewed by Newton (2017). They include the increased use of fertilisers and pesticides, the removal of hedgerows and other uncultivated areas, an increased proportion of autumn-sown rather than spring-sown cereals, extensive land drainage, earlier harvesting times, conversion of rough grazing to reseeded and fertilised ('improved') grassland and increased stocking densities. In 2008–13, fieldworkers found higher stocking rates in many areas than in 1988–94, with consequent loss of some marginal habitats such as cleugh-side trees and damp rushy patches compared to the situation in the early 1990s. Such habitats provide nesting sites for passerines and waders and their loss may have led to the declines seen in these species. It seems likely that the loss of some farmland species from the hill edges continues the losses, documented in Murray *et al.* (1998), of species from what was formerly in-bye land around higher farm steadings. This land used to hold small-scale arable crops, such as oats and rye, which were fed to overwintering animals at the farm; such food-stuffs are now brought in from elsewhere. Fieldworkers in 2007–13 found that small seed-eating passerines such as Tree Sparrows were concentrated at bird feeders in rural gardens and in game cover crops.

Woodward *et al.* (2018) concluded that drainage of farmland and agricultural intensification have had a negative impact on Redshanks nationally and this is mirrored in South-east Scotland. Research into these changes reveal that many are due to changes in land management and farming activities (e.g. Wilson *et al.* 2009).

An increase in the extent of forestry plantations not only removes wader habitat but increases the available habitat for generalist predators such as Red Foxes *Vulpes vulpes* and Carrion Crows; Grant *et al.* (1999) and Douglas *et al.* (2014) demonstrated this effect on Curlew populations in Northern Ireland and southern Scotland, and Wilson *et al.* (2014) showed that Dunlins and Golden Plovers avoided forest edges in northern Scotland. Drainage and the conversion of rough grassland to reseeded and fertilised grassland removes damp patches and clumps of rushes in which waders can hide their nests and chicks. Higher stocking levels can also lead to nest trampling and disturbance. We have also seen a recent increase in the number of wet and windy springs, as predicted by climate change models (Met Office), and which have the potential to reduce chick survival. The decline of extensive farm systems in the hill fringes may have led to declines in a range of other species including Black Grouse, Merlin, Whinchat and Wheatear.

Since 2001 (the year of foot-and-mouth disease), some areas of land are no longer cultivated. Large swathes of southern Roxburghshire, formerly grazed by sheep and cattle, are now covered by rank grassland and Bracken. These habitats are not suitable for nesting waders, which generally require good all-round visibility, nor passerines such as Skylark, Wheatear and Meadow Pipit which were formerly common in this area. Recreational levels in upland areas have also increased in recent years, encouraged by changes to access legislation in Scotland. Finney *et al.* (2005) noted how concentrating visitor access to main paths reduced disturbance in Golden Plovers in northern England. Disturbance has undoubtedly been an issue for coastal-nesting waders such as Ringed Plover (Liley & Sutherland 2007), which was formerly widespread along the East Lothian coastline. Disturbance may have contributed to the loss of some sites for Common Sandpiper, which nests

close to burns, rivers and lochs, just where footpaths tend to run, and Dunlins, which formerly bred on hill tops and by the coast, both areas which attract human visitors. There were three coastal nesting sites for Dunlin in 1988–94, but none in 2008–13. For both species though, there may be other impacts on their populations during their migration or affecting their wintering grounds.

The Wood Warbler and Pied Flycatcher are both long-distance migrants and may be under pressure in their wintering or passage countries. There is no clear understanding of the underlying causes of losses in the resident species associated with woodlands, such as Marsh Tit, Willow Tit and Hawfinch, though habitat degradation through excessive grazing of field and shrub layers in woodland may have had an effect. The Green Woodpecker may have been adversely affected by the loss of pasture habitats with an abundance of its main food source, ants. Across British woodlands, Hewson & Noble (2009) noted negative trends in long-distance migrants, species classified as scrub and understorey specialists and species whose summer diet included seeds.

The upland moors have seen declining numbers and range of breeding raptors in the last 20–30 years. Intensification of grouse moor management has led to the maintenance of artificially high numbers of Red Grouse and the creation of more hill tracks into formerly remote areas (Thompson *et al.* 2016). It is very difficult to prove that illegal persecution of predators is happening on some estates. Though there is legal public access, it is sometimes actively discouraged. Such evidence, supported by the map showing the occurrence of known persecution incidents, suggests that their populations in these areas are limited by illegal killing and nest disturbance. This is known to be the case for Hen Harrier and Peregrine from larger-scale analyses (Fielding *et al.* 2011, Amar *et al.* 2012).

Records of some species were too sparse to establish if a real trend is developing or not, but the occasional breeding season records of Red Kite, Mediterranean Gull, Nightjar *Caprimulgus europaeus*, Hobby, and Reed Warbler *Acrocephalus arundinaceus* may indicate that increasing populations in nearby counties may eventually lead to colonisation in South-east Scotland. Occasional summer records of Black Guillemot *Cepphus grylle* and Icterine Warbler *Hippolais icterina* might yet lead to pairs staying to breed. Also, southern Britain has seen an expansion of some species extending their ranges northwards, such as Little Egret, Mediterranean Gull and Cetti's Warbler *Cettia cetti*, which are yet to breed in South-east Scotland. Only a repeat atlas survey along comparable lines to this one will be able to quantify such changes.

Acknowledgements

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Analysis of pellets from wintering Great Grey Shrikes at two afforested areas in Dumfries and Galloway

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A total of 365 Great Grey Shrike pellets sourced from two afforested areas 43 km apart and at different altitudes, averaging 65 m asl and 245 m asl, in Dumfries and Galloway over three winters were analysed. A total of 1,118 prey individuals were identified of which 65% were from the Galloway Forest Park and 35% from the Forest of Ae. The number of taxa taken varied between the two areas, with a greater range of taxa taken at the lower altitude Galloway Forest Park. At both locations, the diets mainly consisted of small mammals and insects with variable, lesser contributions from other taxa. Lighter and smaller pellets were found in the Galloway Forest Park, which contained a higher percentage of insect, bird, and amphibian remains. Larger and heavier pellets were found in the Forest of Ae, which contained a higher proportion of rodent remains especially Field Vole.

Introduction

The Great Grey Shrike *Lanius excubitor* is a scarce passage migrant and winter visitor to Dumfries and Galloway (Henderson 2018) where it inhabits a variety of habitats usually favouring coniferous forest coupes (Henderson 2013). Great Grey Shrikes are non-selective predators having an opportunistic and generalist diet (Olsson 1986, Straka 1991, Cramp & Perrins 1993). They take a high diversity of small prey including vertebrates and invertebrates, often catching prey according to its relative abundance and biomass, depending on the region, season, habitats and prevailing conditions (Grönlund 1970, Atkinson & Cade 1993, Karlsson 1998, Nikolov *et al.* 2004). Small rodents and particularly voles *Microtus* sp. play an important role in their diet and are the key prey by biomass (Olsson 1985, Hromada & Krištín 1996, Lefranc & Worfolk 1997, Gorban 2000). Insects are numerically abundant in the shrike's diet, but often vary seasonally (Olsson 1984a, 1986, Grimm 2009) with other taxa, including birds, usually taken as supplementary food (Lorek *et al.* 2000, Grimm 2009). Great Grey Shrikes regularly regurgitate pellets and studies have shown that feeding occurs in bouts separated by a period for pellet formation (Olsson 1984a). The diet of shrikes can be studied from precise pellet analysis, which, in the case of Great Grey Shrikes, is considered a reliable measure of prey eaten (Cade 1967, Olsson 1986, Hernández 1999). Over the course of three winters from 2013/14 to 2015/16, at two different afforested areas in Dumfries and Galloway, pellets regurgitated by Great Grey Shrikes were collected for analysis to determine any differences in the prey contents between the two afforested areas and to ascertain if there were any differences between pellet dimensions and weights from the two areas in respect to the different altitudes and prey taken. This paper presents the findings of the pellet analysis.

Study areas and methods

The Galloway Forest Park (54° 59' N, 4° 11' W - 70–100 m asl) has been planted and re-stocked since 1947 and now covers an area of approximately 140,000 ha. The Forest of Ae (55° 14' N, 3° 38' W - 220–290 m asl) was first established in 1927, with later extensions into the Lowther Hills, and covers about 20,000 ha (Ratcliffe 2007) (Figure 1). Both study areas were primarily planted with Sitka Spruce *Picea sitchensis*, hybrid larches (European Larch *Larix deciduas* x Japanese Larch *Larix kaempferi*) and Lodgepole Pine *Pinus contorta* in a mosaic of mixed-aged forestry

coupes including clearfell, restock, pre-thicket and mature. The shrikes' ranges (habitats) were characterised by the presence of much semi-open terrain (young restock and clearfell areas).

The areas were visited twice a month from November to March to source pellets that had been regurgitated by Great Grey Shrikes below sit-and-wait observation perches and at daytime and night roosts. Each pellet found was individually bagged in a Pro-loc resealable bag, given a unique pellet identification code, air-dried for a minimum of two weeks, measured (without and with protruding parts), digitally weighed (±0.01 g) and, once dry, dissected. All portions of invertebrates including heads/mandibles and exoskeleton fragments and the bones, jaws/teeth and feathers of vertebrates were determined to the highest possible taxon division. The minimum numbers of recognizable individuals of each taxon in each pellet were tallied by counting head capsules, elytra and legs of insects, bones and culmens of birds, bones and mandibles (or maxillae) of mammals and bones and jaws of lizards. The osseous remains of small amphibians, mammals, passerines and reptiles together with all other prey remains were identified by following keys and characteristics described in Yalden (2009) and from personal reference material.

Results

A total of 365 pellets were analysed: 191 were sourced from the Forest of Ae from December 2013 to February 2014, of which 56% were sourced during January 2014 while 174 came from the Galloway Forest Park during March, November and December 2014, January 2015 and February

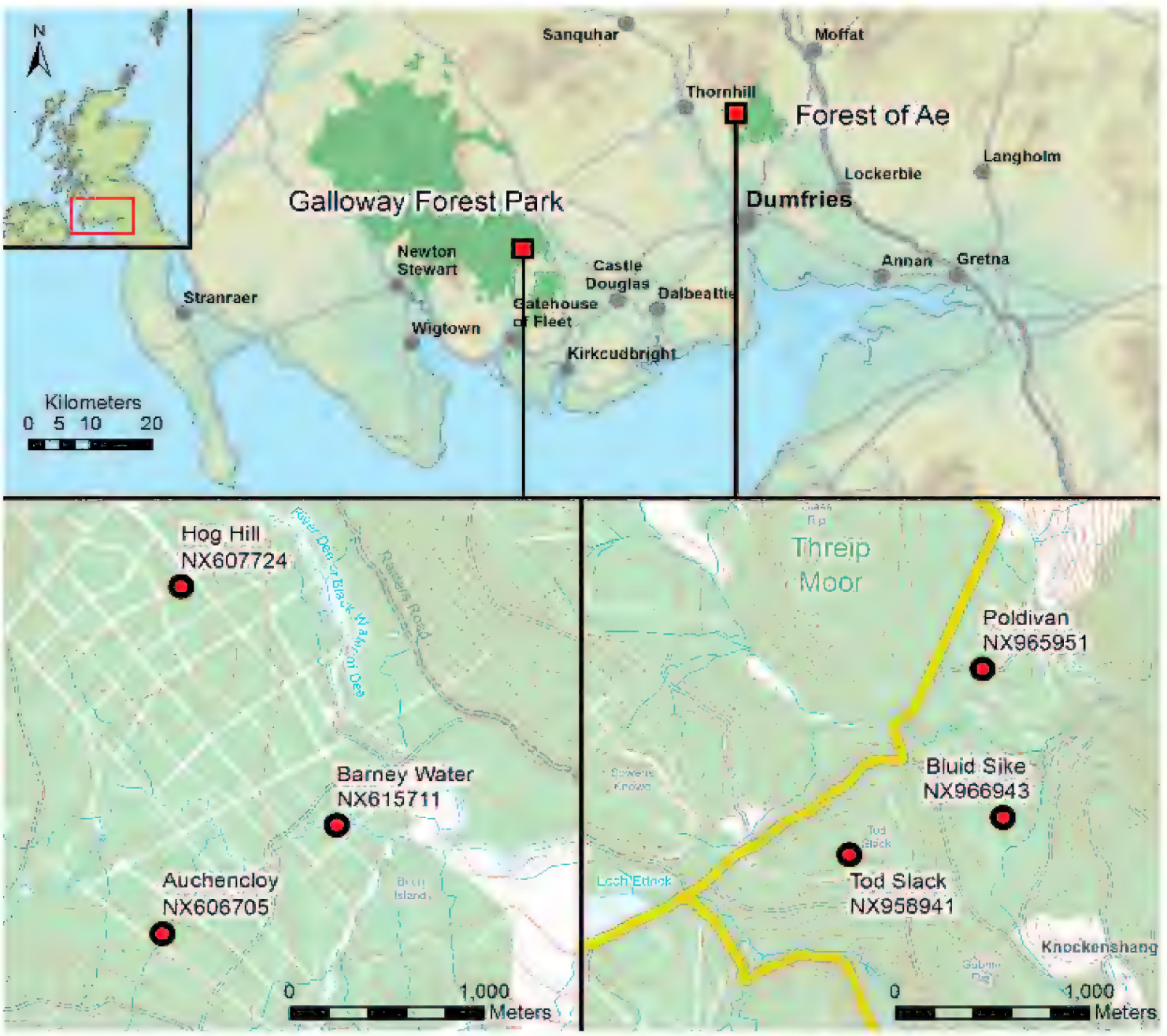

Figure 1. The study areas in Dumfries and Galloway and pellet collection sites within the Galloway Forest Park and the Forest of Ae. (Contains Ordnance Survey data © *Crown copyright and database right 2013.)*

2016, of which 64% were sourced during November and December 2014. Of the pellets sourced from the Galloway Forest Park, 60% were sourced from coupes of clearfell and 40% from coupes of restock while from the Forest of Ae, 78% of pellets were sourced from coupes of clearfell and 22% from coupes of restock. Considering the variation in the monthly number of pellets collected, differences were significant as determined by one-way ANOVA tests conducted at the < .05 levels [$F(4, 5) = 1.34$, $p = 0.04$] whilst there were no significant differences in the number of pellets sourced from the two coupe types [$F(1, 8) = 3.33$, $p = 0.11$] from the two areas. The mean pellet dimensions and weights showed some between-area variation (Table 1).

Table 1. Mean pellet dimensions and weights from the Galloway Forest Park and the Forest of Ae, Dumfries and Galloway, 2013/14–2015/16.

Area	Mean length without protruding parts (mm)	Mean length with protruding parts (mm)	Mean width (mm)	Mean dry weight (g)
Galloway Forest Park	21.6±3.81 (range 12.1–30.2)	23.1±4.26 (range 12.1–39.5)	11.1±1.54 (range 7.3–14.1)	0.39±0.17 (range 0.05–0.89)
Forest of Ae	22.4±3.93 (range 11.6–38.0)	25.1±4.98 (range 14.8–40.4)	11.7±1.25 (range 7.6–15.0)	0.49±0.19 (range 0.15–1.02)

One-way ANOVA tests showed that there were significant differences in pellet lengths with protruding parts [$F(1,363) = 3.86$, $p = <0.05$], pellet lengths without protruding parts [$F(1, 363) = 3.86$, $p = <0.05$] and pellet weights [$F(1, 363) = 3.86$, $p = <0.05$] but there were no significant differences in pellet widths [$F(1, 363) = 3.86$, $p = 0.16$] from the two areas. Pellets sourced from the Galloway Forest Park showed that there were significant differences between the lengths of pellets that were measured with and without protruding parts [$F(1, 346) = 4.33$, $p = <0.05$] but there were no significant differences between pellet lengths measured with and without protruding parts from the Forest of Ae [$F(1, 380) = 34.66$, $p = 8.62$].

A total of 1,118 prey individuals were identified from pellets sourced from the two areas of which 728 (65%) were found in pellets sourced from the Galloway Forest Park and 390 (35%) from the Forest of Ae (Appendix 1). Pellets from the Galloway Forest Park contained 4.18±3.65 items of prey remains (range 1–18) whereas pellets from the Forest of Ae contained 2.04±1.73 items of prey remains (range 1–11). Insect prey remains were found in 62% of pellets sourced from the Galloway Forest Park and in 37% of pellets sourced from the Forest of Ae; one-way ANOVA tests showed that there were significant differences in the number of pellets that contained insect prey remains between the two areas [$F(1, 178) = 2.78$, $p = 0.03$]. Rodent prey remains were found in 74% of pellets sourced from the Galloway Forest Park and in 98% of pellets sourced from the Forest of Ae, one-way ANOVA tests showed that there were significant differences in the number of pellets that contained rodent prey remains between the two areas [$F(1, 314) = 1.76$, $p = 0.01$]. *Microtus* sp. prey remains were found in 55% of pellets sourced from the Galloway Forest Park and in 85% of pellets sourced from the Forest of Ae, one-way ANOVA tests showed that there were significant differences between the numbers of pellets that contained *Microtus* sp. prey remains from the two areas [$F(1, 256) = 3.87$, $p = <0.05$]. The ratio of vertebrates to invertebrates in the Galloway Forest Park was 32.7:67.3%, in the Forest of Ae the ratio was 57.4:42.6%, overall the ratio was 41.4:58.6%.

Discussion

The study areas were where shrikes had previously occurred in Dumfries and Galloway, often in successive years (Henderson 2013, Chambers & Youdale 2014, pers. obs., G. Shaw pers. comm.) and where the diet of a wintering Great Grey Shrike at the Forest of Ae was quantitatively studied in 2012 (Henderson 2013). The pellet dimensions and dry weights of this study were similar to those given in other studies (Huhtala *et al.* 1971, Knysh *et al.* 1991, Bocca 1999, Gorban 2000, Henderson 2013). The heavier range of pellets at the Forest of Ae was attributed to the higher proportion of

osseous rodent remains found in them. The range of lighter pellets at the Galloway Forest Park was attributed to a proportionately higher number of smaller-sized secondary pellets found at night roosts and with more pellets containing the chitinized remains of insects. The higher number of prey items found at the Galloway Forest Park was attributed to a more diverse range of insect remains found in the pellets. Prey selection at the Forest of Ae, where there was more luxuriant ground vegetation present within areas of young restock, was centred on the rodent community particularly the Field Vole *Microtus agrestis*. No transects were undertaken to calculate Field Vole densities at either afforested area but there was a noticeable greater abundance of vole runs, droppings, latrines and bitten grass stems at the Forest of Ae than there was at the Galloway Forest Park (pers. obs.).

Invertebrates were variably abundant in the diets at both areas, however there was distinctly more diurnal winter insect activity, even on days when the temperature was low, at the lower altitude area of the Galloway Forest Park where the temperature ranged 0.7°C to 15.4°C compared to the Forest of Ae where temperatures ranged from -4.8°C to 9.3°C (pers. obs.). At the Galloway Forest Park the success rate for preying on such insects was high, with one long-staying shrike regularly observed catching terrestrial insects, including Crane Flies *Tipulidae* sp., on numerous occasions on warm days. However, all *Tipulidae* sp., most soft-bodied terrestrial insects, almost all *Arachnida* sp. and to a certain extent most *Lepidoptera* sp. were not detectable in the diet due to their high digestibility and low likelihood of finding their remains during pellet analysis.

In the Galloway Forest Park, the shrikes were limited, at times, to particular prey that had to be taken in large quantities, e.g. *Coleoptera* sp. and Pine Weevil *Hylobius abietis*. Their presence in the diet may have been an expression of poor prey diversity there. Most small birds taken in the study, occupied open or semi-open habitats primarily at the lower altitude areas at the Galloway Forest Park, in habitats where passerines would have been expected to be abundant (Newton 1986). The number of birds taken may have been underestimated as a shrike rarely eats all of its prey and some parts are not represented in pellets (Olsson 1986). The marginal contribution of lizards and amphibians was attributed to the low diurnal activity of such animals during the study.

The dietary spectra of wintering Great Grey Shrikes at both areas consisted of variable numbers of small mammals, especially *Microtus* sp., and insects, some of which were taken in large quantities, especially *Hylobius abietis* and other *Coleoptera* sp., with lesser contributions by other prey such as amphibians, passerines and reptiles. The number of taxa taken varied between the two areas, with a greater range of taxa taken in response to the apparent lower availability of optimal rodent prey at the lower areas of the Galloway Forest Park. However, as the study areas were sampled during different winters, the prey species, especially the microtine rodents, may have been present at different abundances during the years that the pellets were sourced.

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Appendix 1. Number and percentage of given prey taxa in the dietary spectra of wintering Great Grey Shrikes at sites within the Galloway Forest Park and at the Forest of Ae, Dumfries and Galloway 2013/14 to 2015/16 as determined by pellet analysis (n = number of specimens).

	Galloway Forest Park					Forest of Ae				
	Auchencloy	Barney Water	Hog Hill	Total		Bluid Sike	Poldivan	Tod Slack	Total	
Prey	**n**	**n**	**n**	**n**	**%**	**n**	**n**	**n**	**n**	**%**
INSECTA										
Undetermined Insecta sp.	1			1	0.1	6	1		7	1.8
Coleoptera sp.	77	36	38	151	20.7	34	3	3	40	10.3
Cantharidae sp.		3		3	0.4					
Carabidae sp.	12	30	9	51	7.0	22			22	5.6
Carabus violaceus	2		1	3	0.4	1	1		2	0.5
Harpalus affinis			5	5	0.7					
Hylobius abietis	158	2	14	174	23.9	14	1		15	3.8
Geotrupes stercorarius		10		10	1.4					
Nitidulidae sp.	1		3	4	0.5	1		2	3	0.8
Staphylinidae sp.						4			4	1.0
Staphylinus olens		3		3	0.4					
Rutpela maculata			2	2	0.3					
Rhagium bifasciatum			4	4	0.5					
Diptera sp.	1			1	0.1					
Forficula auricularia	3	5	1	9	1.2	47	3		50	12.8
Hymenoptera sp.		13		13	1.8					
Vespula vulgaris	11		6	17	2.3					
Bombus sp.	1			1	0.1					
Lepidoptera sp.	2	21	12	35	4.8	20	1		21	5.4
Odonata sp.	1	1		2	0.3					
Aeshna juncea						2			2	0.5
INSECTA subtotal				**489**	**67.2**				**166**	**42.6**
ARACHNIDA										
Araneae sp.			1	1	0.1					
ARACHNIDA subtotal				**1**	**0.1**					
RODENTIA										
Undetermined Rodentia sp.	14	3	10	27	3.7	20	1	3	24	6.2
Myodes glareolus	2			2	0.3					
Microtus agrestis	58	12	19	89	12.2	101	25	12	138	35.4
Microtus sp.	5	9	5	19	2.6	33	6	2	41	10.5
Apodemus sylvaticus						1			1	0.3
Rattus norvegicus	1			1	0.1					
RODENTIA subtotal				**138**	**19.0**				**204**	**52.3**
SORICOMORPHA										
Undetermined Soricomorpha sp.	1	1	2	4	0.5	4		1	5	1.3
Sorex araneus	5		1	6	0.8		1		1	0.3
Sorex minutus	4	1	2	7	1.0	1	1		2	0.5
SORICOMORPHA subtotal				**17**	**2.3**				**8**	**2.1**
REPTILIA										
Zootoca vivipara		13		13	1.8	2	3		5	1.3
REPTILIA subtotal				**13**	**1.8**				**5**	**1.3**
AMPHIBIA										
Rana temporaria	28		5	33	4.5					
AMPHIBIA subtotal				**33**	**4.5**					
PASSERIFORMES										
Undetermined Passeriformes sp.	21	1	7	29	4.0	7			**7**	1.8
Parus ater			1	1	0.1					
Regulus regulus	1			1	0.1					
Troglodytes troglodytes	3		2	5	0.7					
Anthus pratensis	1			1	0.1					
PASSERIFORMES subtotal				**37**	**5.1**				**7**	**1.8**
TOTAL	414	164	150	**728**	**100.0**	320	47	23	**390**	**100.0**

Observations on breeding and dispersal by Capercaillie in Strathspey

K. FLETCHER & D. BAINES

Capercaillie in Scotland have undergone a considerable decline in numbers and range contraction since the 1970s. The latest national survey in 2015/16 concluded that they remain at a critically low level of around 1,000 birds, with previous studies highlighting low breeding success as the proximate cause of decline. This study used radio-tagged females to assess the likely causes of poor breeding. Of the 12 possible breeding attempts followed, clutches were found for nine, six of which hatched, but only two (17%) successfully fledged young, giving an overall rate of 0.25 chicks reared per potential breeding attempt. Low productivity occurred due to 60% of first-year females not nesting and low chick survival, estimated at 8%. Over the same years, surveys in four local forests found 0.49 chicks per female (210 females found of which 24% were found with well-grown broods). Dispersal distances of six juvenile females ranged from 3.5 to 16.3 km highlighting the importance of conservation action across neighbouring forests at a landscape scale.

Introduction

The Capercaillie *Tetrao urogallus* has a world distribution covering northern Europe across to central Asia. The Scottish Capercaillie population was estimated to be only 1,114 birds (95% CL: 805–1,505) in winter 2015/16 (Wilkinson *et al.* 2018), similar to the previous survey in 2005/06 (1,285; 95% CL: 822–1,822) (Ewing *et al.* 2012), 49% less than estimated from survey in 1992/94 (2200, 95% CL: 1,500–3,200) (Catt *et al.* 1998) and more than an order of magnitude less than the guess of 20,000 birds in the 1970s. There has also been a 73% breeding range contraction between 1968–72 and 2008–11 (Balmer *et al.* 2013) and now an estimated 83% of the remaining birds are confined to Badenoch & Strathspey (Wilkinson *et al.* 2018).

The main proximate cause of the decline of Capercaillie in Scotland since 1970s has been low breeding success (Moss *et al.* 2000), accelerated by deaths due to collisions with deer fences (Catt *et al.* 1994, Baines & Summers 1997). Efforts to remove fences and effectively mark those that remained are likely to have helped survival (Baines & Andrew 2002), but predicted improvements in annual survival have not been measured. Measures to improve breeding success have been less successful and this remains low relative to previous estimates in the same forests (Moss & Oswald 1985, Baines *et al.* 2004, Baines *et al.* 2016), and elsewhere in the species' range (Moss *et al.* 2000, Jahren *et al.* 2016).

An analysis of breeding success from forests across Scotland between 1991 and 2009 (Baines *et al.* 2016) highlighted that females reared more chicks in years when hatch time in June was drier, and in forests with lower Pine Marten *Martes martes* and Carrion Crow *Corvus corone* indices. In addition, more females reared broods in years when Aprils were cooler. Densities of adult birds were also found to be lower in forests with higher Red Fox *Vulpes vulpes* indices. Although Capercaillie breeding success is negatively correlated with predator indices, more information is required to determine the stages of breeding that the birds are most vulnerable and which predators are most influential in determining breeding success. In this individual-based telemetry study, we monitored breeding attempts of six radio-tagged females, which were compared with forest-wide breeding measures collected over the same years and we also measured their dispersal distances to determine the required scale of conservation management.

Study methods

Annual surveys to estimate breeding success were undertaken with pointing dogs across four forests in Strathspey in August 2015–19 as part of a longer time series of counts (area covered = 11 to 37 km^2 per annum, Figure 1). When located by a dog, six female chicks approximately eight weeks old, were caught using a hand-held landing net, two in each of 2015, 2016 and 2017 and fitted with a 13 g VHF transmitter, with an expected battery life of 30 months. One female tagged in 2015 was monitored over three further breeding seasons, one tagged in 2016 for another two breeding seasons and the other for three breeding seasons and the two tagged in 2017 for two breeding seasons, giving a total of 12 possible breeding attempts over four years.

From April, females were triangulated every two or three days from forest tracks or roads. If locations were confined within a 100 m radius for three consecutive visits, the female was approached to determine if a clutch had been laid and its incubation had commenced. If the female flushed from the nest when approached, the clutch size was recorded. At that point, a trail camera was attached to a nearby tree, typically 5 m from the nest to reduce the risk of attracting predators (Summers *et al.* 2009). When the female was later located away from the nest location, the nest was approached to determine whether the clutch had hatched (small egg shell fragments found e.g. Green *et al.* 1987) or been unsuccessful (large egg shell fragments/eggs absent, confirmed by images from trail camera). Hatch date was assumed to be the mid-point between the date when it was last known that the female was incubating and the

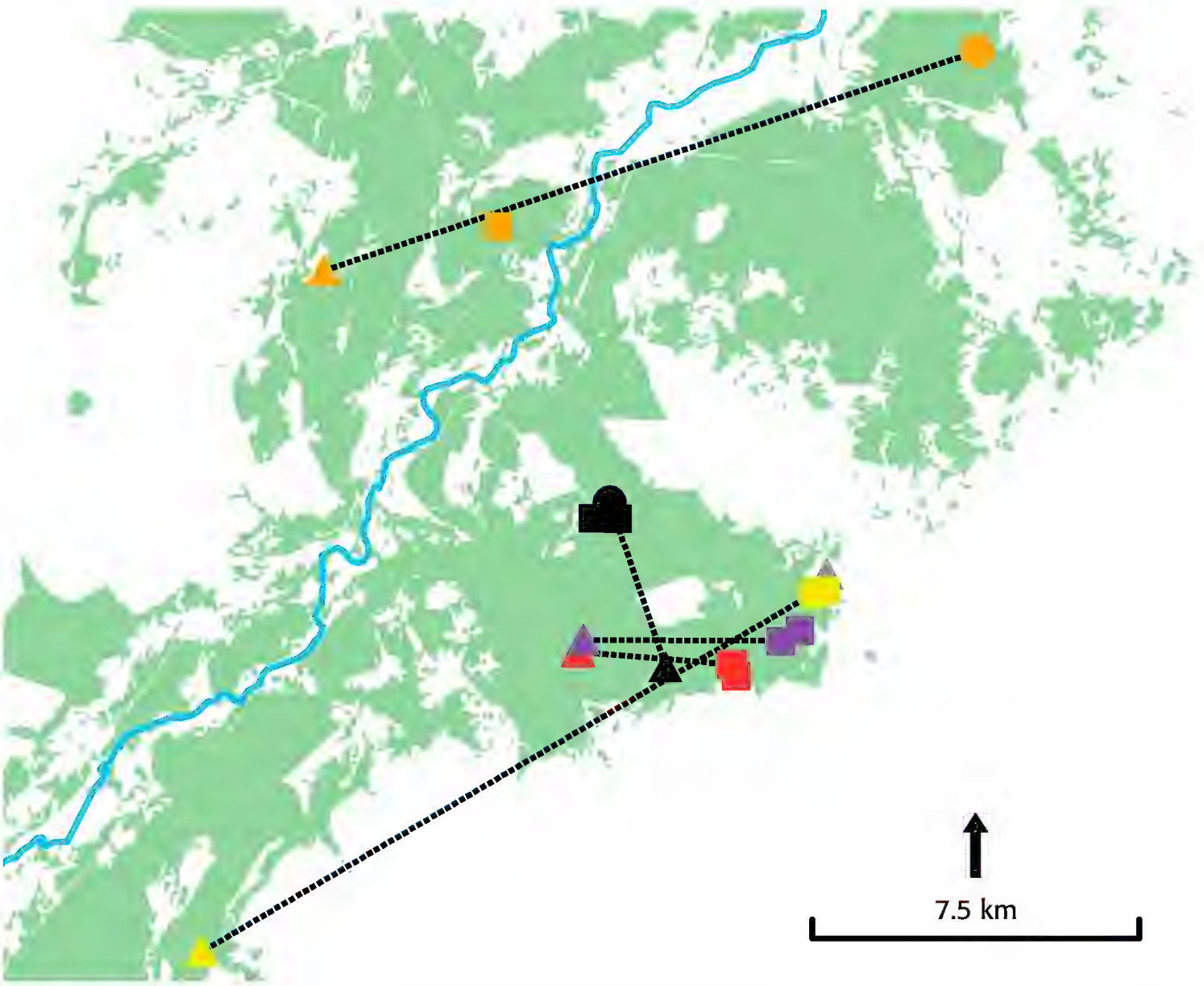

Figure 1. Radio-tagged female Capercaillie catch locations and subsequent breeding attempts (circle = bird location in May but no nest found; square = nest location), showing natal dispersal (▪▪▪▪▪▪▪▪▪). Individual females shown in different colours (black and grey were tagged in 2015, red and purple in 2016 and orange and yellow in 2017). The River Spey (blue line) and woodland cover (green) taken from the online National Forestry Inventory 2017.

date when it was known to have hatched. For clutches that hatched, first-egg laying date was calculated from the estimated hatch date minus 26 days incubation period, minus two days for each egg laid, assuming incubation started when the final egg was laid (Watson & Moss 2008). For clutches that were predated, the mid-point between the earliest date when the female was found at the nest location from triangulation and the previous check away from the nest location was recorded as the approximate start of incubation.

If the clutch hatched, the female was triangulated every week without flushing at night-time roosts and at day-time feeding locations. Three or more canes were placed vertically in the ground about 20 m from the female, as assessed by the strength and direction of the radio signal (Picozzi *et al.* 1999). Once the female was located using radio signals at night, a second observer used hand-held thermal imaging equipment (Pulsar Quantum XP50) to provide a more precise location. This reduced the area to be searched for chick faeces the following day. The number of chick faeces were counted (and weighed) to allow brood size estimation using the equation: number of chicks = 0.89 + 0.12 number of chick faeces as calculated for Black Grouse *Lyrurus tetrix* (Cayford *et al.* 1989). The roost and daytime locations were used to calculate brood home ranges using minimum convex polygons (ArcGIS v10.5, Kenward 2001). Observations of the tagged females were continued until either the breeding attempt had failed or until late July/August when the female was flushed with a pointing dog and a search conducted to locate any surviving flying chicks of approximately 7–9 weeks old.

Annual breeding success (chicks reared per female) of tagged females was compared with surveys of females and their broods using pointing dogs in four forests in 2016 and 2017 (area covered = 37 km^2) and one forest in 2018 and 2019 (area covered = 11 km^2). Data from all forest-years were combined to provide a mean young per female (and percentage of females with broods). Seven of the radio-tagged female breeding attempts overlapped with the areas used to calculate annual breeding success, four were within 3 km and one within 12 km of the boundaries (Figure 1).

Outside of the breeding period (i.e. from September to March), birds were located weekly by triangulation, but flushed at approximately only two-week intervals to provide accurate locations for subsequent habitat surveys (data not included here). These location data were used to identify periods of dispersive (i.e. longer) movements as opposed to short movements within the home range and to estimate dispersal distances. Dispersal was considered to have been completed when subsequent weekly locations were <500 m apart. Home ranges were calculated using minimum convex polygons from locations for the over-winter period and the breeding season for each female in each year. Autumn dispersal was quantified as the distance between the brood catch location and the centre of the over-winter home range. This was repeated for spring dispersal, measuring between the centre of the previous over-winter home range and subsequent breeding season home range. Natal dispersal was the distance from the catch location of the chicks to their first nest location, or the area they used in May if no nest was found (Moss *et al.* 2006).

Results

Breeding success

Of the 12 possible breeding attempts monitored, no evidence of breeding was found for three females, all in their first springs (Table 1). The average clutch size was 6.9 eggs (n = 9, range 5 to 9 eggs), with the estimated first-egg laying dates ranging from 23 April to 20 May (n = 6). Three clutches were predated by mammals. The camera near one nest captured images of a Pine Marten removing eggs (Plate 5). A second nest camera captured a blurred image of a medium-sized mammal (perhaps a Pine Marten) and the seven eggs were removed from this nest without triggering the camera again. Broken eggs from a third nest were examined by independent experts and deemed to have been predated by a mustelid, but marks on the egg-shells could not be distinguished between Pine Marten and Stoat *Mustela erminea*. There was no evidence that females laid replacement clutches.

Table 1. Details of breeding activity for five radio-tagged female Capercaillie (the sixth tagged female died before her first breeding season).

Age (years)	Year	ID	Laying date	Clutch size	No. chicks hatched	No. chicks fledged	Cause of failure
1	2016	15–1	no nesting attempt found				
	2017	16–1	2-May	7	7[a]	0	Chicks died 16–19 days old
	2017	16–2	<6-May	7	0	-	Clutch predation, probably by Pine Marten
	2018	17–1	no nesting attempt found				
	2018	17–2	no nesting attempt found				
2	2017	15–1	-	6	0	-	Clutch predation (mustelid-predated eggs were found when the female was flushed)
	2018	16–1	26-Apr	8	8	0	Chicks died at 0–9 days old
	2018	16–2	2-May	9	9	0	Chicks died at 0–9 days old
	2019	17–1	20-May	5	5	0	Chicks died at 4–11 days old
	2019	17–2	9-May	5	5	2	-
3	2018	15–1	29-Apr	7	6[b]	1	-
	2019	16–1	<25-Apr	8	0	-	Clutch predation by Pine Marten (Plate 5)

[a] all chicks hatched, one chick died in the nest.
[b] one egg found in nest after hatching with embryo partially developed, i.e. embryo death.

Of the six clutches that hatched, only one of 41 eggs laid remained unhatched, with a partially developed embryo found inside, i.e. 100% fertility (96% hatching). A newly-hatched chick was also found dead in a nest. Brood size at hatching averaged 6.5 chicks (n = 6, range 5 to 9). Four hatched broods did not fledge any chicks: two had chicks that all died before the first check at nine days old, one brood was lost when all chicks were 4–11 days old and one when they were 15–19 days old. This latter brood was found roosting on three occasions, but only 1–3 chick faeces (total weight 0.2 to 0.9 g) were found on each check.

Although six chicks left the nest cup this suggested that only one chick was alive by the first roost visit at six days old. The successful brood reared in 2018 by a three-year old female, fledged one chick. Roost locations were found 7, 15 and 21 days after hatching, with three to four chick faeces (1.1 to 2.2 g) recorded on each visit. This low number of chick faeces also suggests that only one chick was present by seven days after hatching. The brood reared in 2019 by a two-year old

Plate 5. A trail camera image of Pine Marten carrying an egg from a Capercaillie nest, Strathspey, May 2019. © *Game & Wildlife Conservation Trust*

female, fledged two chicks. Roost locations were found at 7, 14, 21 and 34 days after hatching. Ten chick faeces (5.1 g) were found on the first roost visit suggesting that only two chicks were alive by seven days old. Subsequent visits recorded 22 to 27 chick faeces (9.2 to 33.5 g), with two chicks seen next to the roosting hen with the thermal imaging equipment when 34 days old. Mean chick survival from hatching to last flush at 7–9 weeks old was estimated to be 8%.

The surveys using pointing dogs showed that Capercaillie breeding success during 2016–19 was on average 0.49 (range: 0.22 to 0.86) young per female and 24% of females had broods (range: 14 to 40%). The equivalent values from the tagged females were within this range, with 0.25 young per female and 17% of females having broods (Table 2).

Table 2. Comparison of measures of Capercaillie breeding success in August from forest-wide surveys and tagged females in the same years (2016–19).

Method	Number females	Number broods	% females with broods	Number chicks fledged	Young per female
Forest-wide surveys	210	51	24%	103	0.49
Tagged females	12	2	17%	3	0.25

The two broods from which chicks successfully fledged had a home range of 0.40 km^2 (0 to 49 days old, n = 11 locations) and 0.12 km^2 (0 to 62 days old n = 10, Figure 2). The brood which was followed until 16 days old (no chicks were detected at 19 days) covered a home range of 0.24 km^2 (n = 7), which was greater than the home ranges for the first 20 days of the successful hens (ID 15–1 = 0.12 km^2 (n = 5), ID 17–2 = 0.02 km^2 (n = 5)).

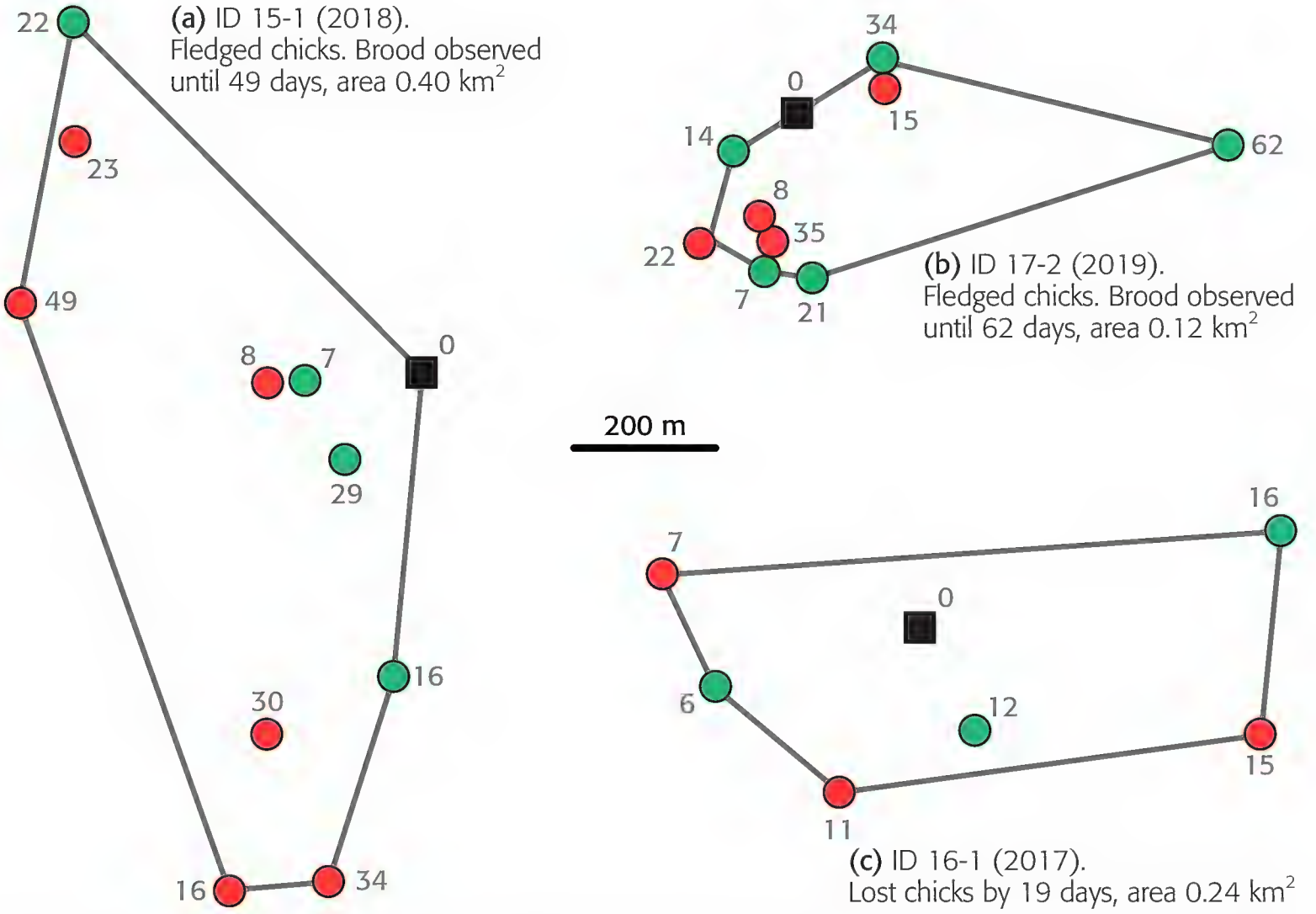

Figure 2. Nest and brood locations and home ranges of three Capercaillie broods, Strathspey, 2017–19. Key: black square = nest location; red = day location; green = night roost location. The number of days since hatching are shown and minimum convex polygon for each brood is drawn (grey lines).

Table 3. The dispersal distance and timing (mid-point) of six female Capercaillie in their first year of life.

ID	Year tagged	Distance in km (mid-point date) Autumn movement	Spring movement	Natal dispersal
15–1	2015	2.7 (29.9.2015)	1.7 (5.4.2016)	4.5
15–2	2015	3.1 (8.10.2015)	died before completed	-
16–1	2016	0 (-)	4.2 (8.4.2017)	3.5
16–2	2016	4.9 (25.10.2016)	0 (-)	4.2
17–1	2017	2.5 (30.9.2017)	18.8 (not available)	16.3
17–2	2017	1.8 (14.9.2017)	14.3 (5.5.2018)	15.8

Dispersal

All six females had dispersal movements within their first year, four in both autumn and spring, one in autumn only and one in spring only (Table 3). Spring movements were three-times further (median: 9.3 km, range: 1.7 to 18.8 km) than autumn (range: 2.6 km, 0 to 4.9 km). Median natal dispersal was 4.5 km (range: 3.5 to 16.3 km).

After first-year dispersal, four females used similar summer and winter home ranges in following years. However, one female nested in her second breeding season 11.7 km from the centre of her home range in the previous year, with the movement taking place between 30 April and 7 May.

Discussion

Three of five females (60%) appeared not to breed in their first springs, which is similar to the 46% of 13 females not recorded breeding in their first springs in north-east Scotland (Moss *et al.* 2006). As the tagged females were only approached once incubation had commenced, it cannot however be ruled out that breeding had been attempted and that undetected clutches may have failed during laying or initial stages of incubation. All females bred in their second and third springs.

Three of the nine clutches (33%) were likely predated by Pine Martens, which approximates to the 39% of clutches predated by Pine Martens at nearby Abernethy Forest (Summers *et al.* 2009). Only two of 12 breeding attempts by the radio-tagged females were successful, with chicks being reared, confirming the low rate of breeding success in Scottish forests (Moss *et al.* 2000, Baines *et al.* 2016). The average of 0.25 young per hen recorded from radio-tagged hens was lower than the average of forest-wide estimate from surveys using pointing dogs in the same years (mean 0.49, range 0.22 to 0.86 young per hen). Whilst reproductive success declined but has now stabilized at low levels in most European regions (Jahren *et al.* 2016), reproductive output in Scotland is thought to still be declining (Baines *et al.* 2016). Levels of breeding success in this study were below the 0.6 chicks reared per female per annum required rate to offset the mortality of full-grown birds estimated by Moss *et al.* (2000).

By tagging females, we provided insights into causes of breeding failure, principally predation of clutches by martens and low chick survival, estimated to be only 8% across the six broods that hatched. A weakness of the study was that it was not possible to determine the causes of low chick survival. Previous studies have identified inclement post-hatch weather (Moss 1986, Baines *et al.* 2004) and predation, again perhaps involving a Pine Marten (Fletcher *et al.* 2015, Baines *et al.* 2016) as being important. A further factor, that of parasite-induced impacts on chicks, especially by Sheep Tick *Ixodes ricinus,* which has increased in abundance and distribution in recent decades on moorland (Kirby *et al.* 2002), including those in the vicinity of our study forests, has yet to be adequately considered. Studies of ticks and ground-nesting birds in northern Scotland and wider have shown significant impacts on chick survival in both Red Grouse *Lagopus lagopus scotica* (Baines & Taylor 2016) and Golden Plover *Pluvialis apricaria* (Douglas *et al.* 2019). Tick parasitization of Capercaillie chicks commonly occurs in at least one of the study forests (R. Moss unpublished data), may be having similar impacts, and is considered a priority subject for further

research. Invertebrate availability, especially preferred lepidoptera larvae feeding on Blaeberry *Vaccinium myrtillus*, may also influence chick survival (Picozzi *et al.* 1999, Wegge & Kastdalen 2008). Fitting radio tags to chicks thereby enabling carcass recovery (e.g. Mason *et al.* 2018), would be an option to improve our understanding of the factors known to limit chick survival, especially in the first two to three weeks after hatching when most chicks died in this study. The balance between the importance of these data to Capercaillie conservation relative to the associated disturbance related impact would need to be considered when planning further studies.

Females had a median natal dispersal distance of 5 km (range: 4 to 16 km), half that recorded on Deeside (median 11 km, range 1 to 30 km, n = 13 Moss *et al.* 2006). These dispersal distances within the core of the Scottish Capercaillie range clearly show that appropriate management to increase breeding success needs to be deployed at a landscape scale across adjacent forest boundaries. Data from this and other studies suggest this should include means of reducing the impacts of Pine Martens and crows to increase clutch survival and possibly that of chicks too. Deployment of methods to reduce possible tick-related impacts on chicks, may also be necessary once much needed research has been completed on this topic. Without management interventions to increase breeding success, it is likely that the already threatened Scottish Capercaillie will continue to decline.

Acknowledgment

This work was funded by Scottish Natural Heritage, Scottish Forestry (formerly Forestry Commission Scotland), Forestry and Land Scotland (formerly Forest Enterprise Scotland), Cairngorm National Park Authority and Game & Wildlife Conservation Trust. The work was undertaken under SNH and BTO licenses with assistance from Nick Hesford, Mike Richardson and Phillip Warren. We thank the forest owners and estate staff for access and assistance with night visits. We are grateful to Rob Raynor and Robert Moss for examining egg remains and an anonymous reviewer for helpful suggestions to improve the text.

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Revised ms accepted November 2019

Plate 6. Atholl Palace Hotel and returning walkers, Pitlochry, Perth & Kinross, November 2019. © *Jimmy Maxwell*

SOC Annual Conference, Atholl Palace Hotel, November 2019

"No sun, no moon, no proper time of day... November." This quotation seems to aptly describe the general atmosphere of our journey towards Pitlochry this year. Even the 40 grey silhouettes of Waxwings at House of Bruar looked miserable, perched there in the misty, dreich weather. What contrast then the warm, carpeted, welcoming hallways of the Atholl Palace Hotel for the 214 delegates - the largest number yet in our history! Catering was excellent as usual and after the delicious buffet meal and settling in, Ian Bainbridge, our President, welcomed everyone and the evening's programme began.

Where to watch birds in Scotland - Alan Knox

Alan kicked off the conference with an entertaining overview of just how much hard work went into the development of the SOC's 'Where to Watch Birds in Scotland' app, which launched in April 2019.

Not assuming everyone was familiar with a smart phone or apps, Alan gave an amusing explanation, highlighting that books aren't always the first place people go for information nowadays. The rationale behind the app was based around the Club's ethos of involving people and encouraging them to get into birds, which was a key reason for making the app free for anyone to download.

Muddy Puddle, who recently redeveloped the Club's website, was selected to develop the app and it was funded through *The Birds of Scotland* Fund plus members' legacies to the Club and a donation from the Glasgow University Natural History Society.

Martin Cook and Jane Allison were also heavily involved in the app's development and, as the team only met twice, most of the work was done by email, with an impressive 10,000 emails exchanged! The app launched with 400 different

Scottish sites contained in it, with another 100 having been added in the months since and the number is continuing to build thanks to a network of contributors across all regions.

Alan gave us a tour of the app, showing us how to navigate and search for different sites or species. Each site contains information about the site, various places of interest and how to view the birds you are likely to see. Alan challenged everyone to have a go at using the app by looking for the 'Easter Egg' that had been hidden somewhere within it for the conference weekend!

Since the app launched approximately 2,000 people have been using it every month, with users in more than 30 countries. With these statistics and the reality that there is nothing else like the app out there at the moment, it's no wonder Alan ended his talk with a plea to us all to vote for it in the *Birdwatch* magazine's Birders' Choice Awards 2019, for which it had been shortlisted.

Alison Creamer

After his lecture, Alan Knox with Martin Cook were presented by the SOC President with beautiful bird paintings by Killian Mullarney in recognition of their volunteer contribution to the app project.

Plate 7. Ian Bainbridge (left) presenting the paintings to Martin Cook and Alan Knox (right). © *David Palmar/ www.photoscot.co.uk*

Plate 8. Stephen Inglis and Lucy Purbrick answering questions. © *David Palmar*

My Patch on the App - Lucy Purbrick and Stephen Inglis (SOC Youth Connect)

In what was a great turnout by young birders at this year's conference, it was only appropriate to hear two members of the SOC Youth Connect group.

Lucy Purbrick began this double bill speaking about Linlithgow Loch in West Lothian. She guided the audience through the variety of birds that can be seen across the seasons at this site. Her highlights included Common Sandpiper, Kingfisher and Shoveler. Lucy noted seeing Blackcap there in spring as one of her favourite records at the site. Any time of year is worth it though, whether to see Mallards with ducklings or even rarer birds such as the Slavonian Grebe which Lucy mentioned was reported on the loch a few years ago. She spoke of her dad seeing Water Rail there and recommended getting to the loch as it is very accessible. It can provide views of Goldeneye and Redwing in winter, especially if you get there earlier in the day.

Stephen Inglis followed this with his patch at Shieldhill Farm near Eaglesham in Renfrewshire. He spoke of the increase in records he has gathered on the site over the past five years which has helped in growing his interest. This led to him writing a piece about the patch in British Birds. One of the highlights of the talk was seeing footage of raptors Stephen had filmed at the site. The audience got to enjoy videos of Hen Harrier, Merlin and Kestrel. Trail cams put out by Stephen revealed many waders

using the site including Snipe, Golden Plover and Curlew with young. He was very happy with this selection having put out the trail cameras especially to capture images of waders. Stephen had even caught a Fox on one of the cameras.

It was great to hear from two people who will be well known names within Scottish birding and are part of the next generation for the SOC. An enjoyable listen and we can be sure the enthusiasm for birding in Scotland will be carried into the future after this fantastic talk by Lucy and Stephen.

Ptolemy McKinnon

Plate 10. Walking back towards Dunmore. © *Donald McLean*

As usual on the Friday evening, the audience was treated to a variety of orni-teasers where they had to guess 'Who's my Mum' from assorted chicks, identify contrasting squeaks and quacks and recognise reserve landscapes, etc. This was all good fun and a nice way to relax and exchange ideas. Our thanks go to David Jardine and Andrew Stevenson for their ingenuity and hard work.

Saturday morning

Amazingly the rain stayed off for the morning's walks and we are indebted to the following leaders: Wendy Mattingly - an early trip to Schiehallion for lekking Black Grouse; Ben Darvill - Loch Faskally and the Tummel Valley; Martin Robinson - Moulin Moor; Martin Cook - Garry Bridge to Pitlochry; Simon Eaves and Kate Mennie (Speyside Wildlife) - Loch Faskally; Carol Miller - Garry Bridge to Linn of Tummel

Plate 11. Choosing books. © *Jimmy Maxwell*

Plate 9. Birding around Loch Faskally. © *David Palmar*

Saturday afternoon

The conference chamber this year was ringed with all the exhibitors' stalls - an excellent spatial idea which saved much corridor walking and stairs. These as usual included SOC, RSPB and BTO with Second Nature, Speyside Wildlife, Viking Optical, Wader Quest and Woodland Trust. Work was displayed by artists Keith Brockie and Paul Bartlett and wildlife photographers Photoscot and Wildscotphotos.

The conference lectures duly resumed with young Sam Hood in capable charge of AV and David Palmar ably handling all the duties of the official photographer.

Plate 12. Des Thompson. © *David Palmar*

Scotland's mountains, special birds and remarkable people - Des Thompson

Des gave a balanced and fascinating overview of the birdlife on Scotland's high mountain tops and the factors impacting on their populations. He also gave a compelling insight into the work of the renowned pioneering naturalists, Adam Watson, Derek Ratcliffe and Desmond Nethersole-Thompson whose contributions laid the foundations for our knowledge of the birdlife which not only survive but breed in this unforgiving environment. He paid tribute in particular to Adam Watson who passed away earlier this year.

He set the scene by tracing the most obvious effect of climate change, namely the declining snow cover and the profound effect it is having on the unique vegetation. The subsequent long-term effect on the birdlife was illustrated by a very dramatic graph and he brought in the work of Stuart Rae who has charted the marked decline in Ptarmigan numbers. The long-term study of the Dotterel by Desmond Nethersole-Thompson, who had obviously inspired a young Des, was used to highlight the ecology of this species and also the exceptional endeavour of those hardy fieldworkers of the high tops.

The reasons for the decline of these iconic species were explored in detail - habitat changes, overgrazing, warm and wet periods of weather and the abundance or otherwise of insects and different responses at different altitudes. The talk was beautifully illustrated and delivered by a real montane specialist and his message was clear - all of us have a part to play inspired by the conservation heroes and their fantastic legacy.

Gordon Riddle

Special places - machairs and the Uists - Rob Fuller

Unique to the Uists is the extent of the machair - a complex of coastal dunes, cultivation, wet grassland, marshes and rich lochs influenced by a long history of extensive human usage, grading into in-bye grassland which forms a transition zone between machair and inland moorland. Each landscape is exceptionally interesting biologically and geomorphologically and has its own characteristic bird assemblage. The machair landscape is unique internationally in its extent and habitat heterogeneity. Cultivation of oats, rye and bere is undertaken solely to provide overwinter cattle food. In recent decades increased use of synthetic fertilisers and silaging of crops has occurred.

Corncrake populations are nationally important but the breeding waders are internationally significant, being one of the outstanding concentrations in Western Europe. The introduction of Hedgehogs to South Uist in the 1970s has resulted in high predation on eggs and small chicks of Lapwing, Snipe, Dunlin and Redshank. Even where Hedgehogs are absent there have been large changes in composition in breeding wader assemblages over the last 40 years. Redshank and Oystercatcher have increased but Dunlin and especially Ringed Plover have decreased. The causes remain obscure but changes in farming practice, shifts in patterns of avian predation, and changes in soil fertility and salinity may all be relevant.

The wonderful bird communities of the Uists have long been shaped by human activities. The 20th century may have been a 'golden period' for birds of the Uist machair. Human populations were far larger in previous centuries and levels of disturbance, exploitation of birds for food and intensity of land use were likely to have been higher. The past 40 years has seen large changes in birds and further change seems likely. Further change in agriculture such as a shift away from cattle towards sheep farming would result in cessation of cultivation, the loss of plant-rich fallows and more uniform grassland.

The effects of storms and sea-level rise are crucial to the future of machair and the special ecosystems it contains. We must hope that the ever-changing dynamics of these coastal environments will continue to create new habitats and opportunities for exciting wildlife to live alongside thriving human communities.

David Palmar

Plate 13. Rob Fuller. © *David Palmar*

Plate 14. Will Cresswell. © *David Palmar*

Can ecotourism save the world? - Will Cresswell

Will has given a lot of thought to the subject of "can ecotourism save the world" and he thinks it can. He went with a group of students to the Antarctic and they all found it a very intense experience. Among the species they were fortunate to see were Humpback Whales, penguins and the highlight for him, the Wandering Albatross.

All companies visiting the Antarctic have joined together and agreed on rules for tourists. They include disinfectant being used on and off the islands and strict routes which must be followed. Certain distances have to be kept from wildlife although this proved to be difficult with the inquisitive penguins coming closer to see them.

He talked about the financial value of ecotourism to countries where in some cases it is their main source of income. They now have a financial reason to save vulnerable species and habitat and in protecting the charismatic species, the smaller creatures also benefit. He mentioned Nigeria where local people are being trained to be wildlife guides and took his children to Uganda where seeing Chimpanzees in the wild was transformative and they are still talking about it.

He told us about grants available for young people to become ecotourists and some are crowd funding for their own experiences. Will quoted in Scotland the example of Mull where the re-introduction of the White-tailed Eagle and local species have brought employment and revenue, and quoted David Attenborough saying the Isle of Mull "is a must go place". He described trying to interest holiday makers in our local areas in the wildlife there and also writes a blog about the wildlife in Crail.

He talked about mitigating air travel with the planting of trees and changes in our life styles and how ecotourism is only a small part of tourism as a whole.

A lively question and answer session followed with concerns about off-setting air travel and whether the revenue from tourists always actually reached the local people.

Gillian I. Herbert

Plate 15. David Steel. © *David Palmar*

Special places - seabird islands and colonies - David Steel

David's talk was very well received, and what became very evident was his enthusiasm for his topic even after 19 years of working with seabirds. We were treated to many fine images of seabirds and sites plus an amazing amount of facts and figures such as - there are estimated to be around 5 million seabirds of 26 species in Scotland; we have a third of all the seabirds in the European Union; 97% of British Bonxies nest in Scotland; 47,000 pairs of Arctic Terns breed in Scotland before setting off on their incredible 10,000 miles + journey to Antarctica, where they arrive in January; there are 150,000 Gannets on the Bass Rock with some now starting to colonise St Abb's Head; around half a million Fulmars nest in Scotland, and we also learned that many of our Kittiwakes winter off the coast of Greenland.

David informed us that 10 out of 18 of the seabird species have declined including 74% fewer Arctic Skuas, 72% fewer Arctic Terns and 66% fewer Kittiwakes since 1986. On the brighter side, there have been increases in Gannets, Razorbills and Black-headed Gulls. We were also informed that the fathers of Common Guillemots and Razorbills look after their single young for a month after the youngsters have jumped off the nesting ledges into the sea. Fulmars breed at eight years old, incubate for two months, then the young take 65 days to fledge. It was good to see some maps of seabird movements.

We learned that some of the Farne Isles' Sandwich Terns move north before finally migrating southwards, and that after all the studies carried out with Common Guillemots, no-one really knows why some are bridled and some are not, with the percentage increasing the further north you go. Around 20% of Arctic Common Guillemots are bridled. The overall trend of David's talk was to make us feel very privileged that we live in a country with so many nesting seabirds, and are able to experience the sights, sounds and smells quite easily by visiting one of the many seabird colonies on mainland cliffs or the very special Isle of May.

Russell G. Nisbet

The 83rd SOC Annual General Meeting

The minutes for the 82nd SOC AGM were approved.

Annual Report
Much of the business during the year had focused on the Club's strategic direction, governance, and finances and Ian Bainbridge stated that the new office bearer structure had been working very well. He thanked the SOC Council and all the staff and committees for their co-operation and offered his compliments to the two Vice Presidents for their leading role in this. He described the new SOC App as a major milestone in Scottish ornithology and paid tribute to Alan Knox, Jane Allison and Martin Cook and all the contributors for their hard work. He felt that through it the SOC was extending its reach and meeting its charitable status in this very practical way.

Annual Accounts
Andrew Thorpe, SOC Treasurer, explained that these accounts were already approved by the SOC Council and were now available in extended detail on the SOC website. He stressed the financial importance of legacies, quoted the contribution from artwork and sale of goods to Club funds and maintained that finances were now more effectively controlled through the new committees' structure.

By post prior to the AGM, Alastair Whitelaw questioned whether the possible departure of UK from the EU was likely to influence our finances or investments. Quoting advice from Brewin Dolphin and explaining how our investments were constructed, Andrew felt there was no threat to our current position.

Revised Constitution
Details of this have been available for a while now and approval for the changes was sought and gained from the audience.

Recognition of contributions to the SOC's activities and objectives
Those currently holding Honorary Member status would continue. However, members making an outstanding contribution to Scottish ornithology would in the future become a 'SOC Fellow'. This was adopted and would be awarded sparingly.

Re-election of Council Member
To general applause, it was announced that Chris Wernham had agreed to continue to serve further on Council.

Election of Honorary Secretary
Current Secretary, David Heeley was standing down from this position and would be replaced by David Lindgren - this was approved with due congratulations. Grateful thanks were expressed to David Heeley for a wonderful job over the years and he was presented with an appropriate bottle.

Appointment of Independent Examiner
Up until now, Sandy Scotland had capably filled this position, but from January 2020 he would be replaced by Louise Presslie of Whitelaw Wells who would also be willing to examine our accounts and offer advice regarding VAT etc.

Closing the AGM, the SOC President then announced that the next one would be at the same venue and on the equivalent weekend in November 2020.

Young birders' networking session
This was a new venture designed to allow young birders to converse with the conference speakers and other professionals in the field of ornithology in the relaxed surrounds of the Piano Bar. Refreshments were kindly sponsored by MacArthur Green (an environment consultancy) and each young person could put prepared questions to the experts. According to the participants, this was a successful idea and is likely to be repeated.

Plate 16. Chris Wernham and Ben Darvill with young birders. © *Jimmy Maxwell*

Conference dinner and ceilidh

A great performance here by the hotel staff - their speed, efficiency and style were impressive. The food was excellent and enjoyed by everyone. The Ceilidh followed and we saw the floor consistently more crowded than usual, mostly due to the efforts of band member Jack who demonstrated, encouraged and cajoled to great effect, considering how many were trying the dances for the first time. The local three-piece Alba Ceilidh Band made the dancing a real pleasure and this was shared even by the older, non-jigging audience - a wonderful social evening for all.

Sunday

After a hearty breakfast and a quick look out at the even greyer skies, the audience was ready for the day's lectures.

Special Protection Areas in Scotland - their value and their future - David Stroud

David's fluent and confident delivery, with the authority which comes from mastery of the subject, giving structured explanations and repeated relating of species to subject matter was engagingly informative and inspiring.

Plate 17. David Stroud. © *David Palmar*

Special Protection Areas (SPAs) in Scotland we were told, originated as a result of the adoption in 1979 by the UK Government of the EU Birds Directive. The intention was that in Scotland a network of protected sites from Muckle Flugga to the Solway was to be created as part of a more extensive network throughout all EU countries. They would be the jewels in Scotland's environmental crown. Today, Scotland has a high proportion of land surface, coastal land, machair, peatlands and mountains in SPAs and there are marine SPAs as well. Full implementation of the Directive, however, was intended to have been carried out over the two years following its adoption. That intention has not been fulfilled. The contemplated network remains incomplete 40 years after inception of the plan. There were reviews in the 1990s, a comprehensive review in 2001 and a future review is intended.

The SPA concept is suitable for site-based conservation of species like Avocet but does not lend itself to widely based species like Skylark. Identifying sites for species which breed communally like Gannet is easier than for wide-range breeders like Swallow. In identifying prospective sites, circumstances of change are relevant. Declines in taxa like Greenland White-fronted Goose and Dotterel, northern movement of the likes of Little Egret and Avocet and movements of colonists such as Spoonbill have to be taken into account.

For the future, warming is a concern raising the question as to how quickly we can decarbonise. Sites have to be in the best condition possible as is being achieved by deforesting the flows, albeit a process that will take a generation to complete. Sites should be bigger, better and more connected. After leaving the jurisdiction of EU law, the Directive will be written into UK law and a new Office for Environmental Protection will take on these responsibilities. Presently, there is no equivalent office for Scotland. The talk was a realistic balance of the good points and the remaining concerns.

Sandy Mitchell

Plate 18. Chris Wernham. © *David Palmar*

Special places - estuaries and in-shore waters - Chris Wernham

Chris chose to illustrate the scope of our extensive coastline by concentrating on her home territories of the Forth and Tay estuaries. An intimate acquaintance with the muddier reaches of the Tay had given a ground up knowledge of the ecological dynamics of this habitat; now Chris counts and surveys on the upper Forth. We were brought up to date with the evolving story here with the recent arrivals of Reed Warbler, Bearded Tit and the first breeding pair of Marsh Harriers. The mid and lower reaches of the Forth all have their share of notable sites with some large recorded counts, including Pink-footed Geese as you might expect, but also Oystercatchers and Redshanks. All this despite the human pressures of a large population producing sewage, exercising dogs, and working in agriculture and heavy industries such as the Grangemouth oil refinery.

Throughout the talks the importance of the counts performed by the conference attendees to support the science was emphasised and here not only the importance of doing WeBS counts was stressed but also the usefulness of the finished product as a resource we can all consult. As a 'guest speaker', Norman Elkins, long time organiser of WeBS counts for the Tay and Eden estuaries, gave a similar look at the sites here. The Eden is a small river that broadens into a tidal lagoon before discharging into St Andrews Bay, and drains to a large expanse of mudflats at low water. Figures showed startling decreases in populations of Golden Plover, Lapwings and Bar-tailed Godwits. After a brief reference to the Upper Clyde, Chris finished with the upbeat message - to enjoy the wonders that we have and, another theme underpinning this year's conference - what we learn when young is significant through life, so share your passion with the young to encourage them.

Jeffrey Banks

Special places - RSPB Loch Gruinart - James How

James How gave an excellent presentation on the RSPB Loch Gruinart Reserve, where he has worked for the past 15 years, after five years on Oronsay. The 1,700-acre reserve, which was bought by the RSPB in 1984, contains a wide diversity of habitat, with estuarine mud, saltmarsh, wet grassland and flood meadows. There is also deciduous woodland, upland heather and blanket bog which obviously requires considerable management. The RSPB run the arable farm on normal farming lines and they do try to make a profit from the operation. James gave a fascinating insight into the management of the flood meadows. The Gruinart Flats were reclaimed in the 1800s by diverting rivers and installing a network of drains. Since 2000, the RSPB have restored the drainage system with many sluices in place to control the water levels. These have to be monitored regularly to ensure they are working properly.

Plate 19. James How. © *David Palmar*

Many people visit Loch Gruinart to witness the huge numbers of Barnacle Geese which fly in during autumn. The numbers fluctuate, but in 2018 they peaked at 35,000. Greenland White-fronted Geese appear and their winter roost is one of the largest in the UK. Increasing numbers of Whooper Swans are wintering on Islay due to more barley being planted for the whisky industry. Pintail, Wigeon, Shoveler (which now breed) and Teal are also present.

Other birds have varying success on the island. Chough, which only breed on Islay and Colonsay, are in decline as are Curlew with only around 20 breeding pairs and the success of Lapwing breeding fluctuates dependent on early rainfall levels. Areas of the island are being managed in conjunction with local farmers to encourage breeding Corncrakes. In 2019, there were six calling males on the reserve - with a total of 54 on the island.

About half the reserve is moorland and not grazed. This supports a healthy population of Hen Harriers in both winter and summer. Monitoring of nests and checking of rings takes place to assess how many come back to breed and what they feed the young on. There are between three and seven pairs and around 15 young have fledged in the past few years. White-tailed Eagles have been spreading out and come in to hunt the geese.

James concluded his fascinating presentation by encouraging everyone to come to Islay. Who could disagree?

James Main

Migration, bird finding and species studies - Ken Shaw

Ken is a very well-known, experienced and respected birder who gave a fascinating talk on the subject of finding, identifying and studying migrants and rare breeders. His talk was peppered with anecdotes of both the birds and their finders and photographers. He discussed a variety of well-known migration sites, especially the Isle of May and Foula.

The Isle of May is famous for its seabirds and migrants, and associated with a whole host of former luminaries such as the Misses Rintoul and Baxter, George Waterston and Maury Meiklejohn. Some of these personalities were illustrated. Ken described how the arrival of a few migrants often heralds wind changes that bring large falls. He stressed the importance of keeping an up-to-date log, making accurate counts and the necessity of carefully covering the whole island, as birds can be flushed from even the smallest gully. Foula is so much larger and more isolated and, although Ken apologised for the quality of some bird images, this did not detract from the amazing sight of 'east meets west' - a Pechora Pipit and Veery next to each other!

In the art of bird finding, luck rarely figures; it is the skill and tenacity of the observer that matters. Some identifications can be so difficult that an experienced birder has to face up to the challenge of getting it right and not giving up, even though many may disagree!

Ken then described the fortunes of Whinchat, Yellow Wagtail, Honey-buzzard and White-billed Diver, each of which had a story to tell. Dedicated enthusiasts can make a huge difference to our knowledge. The Honey-buzzard is a particularly interesting (and secretive) species. About two to three pairs

Plate 20. Ken Shaw. © *David Palmar*

Plate 21. Ben Darvill presenting the BTO Jubilee Award to Bobby Smith. © *David Palmar*

were thought to breed in mixed habitat in central Scotland but careful studies have now revealed 65 birds. Plumage characteristics are sufficiently different to allow some to be individually named. Such studies as this can change the known status of a species, an example being the White-billed Diver, which, after careful observation and counting, has been revealed as a passage migrant in northern Scotland, rather than a great rarity.

A thoroughly entertaining presentation, during which Ken praised the efforts of many well-known present-day birders and photographers.

Norman Elkins

The main item to end the conference was the presentation of the SOC Branch Recognition Awards by the Club's President, the official acknowledgement of the special contributions made by individuals in certain branches. These were as follows: **Central Scotland** - Neil Bielby; **Moray** - Martin Cook and Melvin Morrison; **Fife** - Paul Taylor; **Stewartry** - Joan Howie and Paul Collin; **Ayrshire** - Ian K. Clark; **Caithness** - Julian Smith; **N-E Scotland** - Nick Littlewood.

Also awarded was the very special **BTO Jubilee Award**. This was presented to Bobby Smith for all his life-long, varying contributions to conservation and wildlife in general. Bobby is so well-known and respected by this audience that his deserved achievement was warmly applauded by all.

The Raffle results came next, the prizes swiftly allotted by Wendy to the lucky winners - the amount raised was an amazing £654. It then remained for Ian Bainbridge to thank all who had contributed to the conference in different ways, including all the prize sponsors, the walks leaders, the hotel staff and specially Wendy and her helpers for their untiring preparations. He wished everyone a safe journey home, albeit in even rainier conditions, but content in having enjoyed a really fine conference.

Jimmy Maxwell

NEWS AND NOTICES

New members

Ayrshire: Mr W.A. Galloway, **Caithness**: Mr B. Farley, **Central Scotland**: Mr & Mrs I. Baird, Mr & Mrs K. McLean, **Clyde**: Miss V. Barry, Mr R. Bennett, Mr J. Dunlop, Ms H. Greetham, Mrs L. Johnston, Ms R. Kelly, Mr D. Kelly, Miss L. Marshall, Mr & Dr B. McCorkell, Mrs A. Munro, Mr R. Wheeler, **Dumfries**: Miss E. Barr, Mr A. Gibb, Mrs P. Smith, **England, Wales & NI**: Mr D.A. Bell, Ms H. Bennett, Mr P. Massey, Miss C. Milne, **Fife**: Mr & Mrs W.G. Brown, **Highland**: Miss C. Godley, Ms E. Goldsmith, Ms E. Harwood, Mr C. Johnstone, Mr J. Rendall, **Lothian**: Mrs S. Beattie, Mrs R. Beckett, Mr D. Brown, Mr J. Corner, Dr H. Forrest, Ms V. Gallagher, Mr S. Garbett & Dr R. Haining, Mr & Mrs J. Graham, Ms S. Hindshaw, Mr R. Leighton, Miss A. Lilac, Dr & Mrs J. Marshall and family, Mr S. Metcalfe, Ms S. Nugent, Mrs A. Parker, Mr R. Parkinson, Mr G.S. Patterson, Mrs R. Simpson, **Moray**: Mr & Mrs P. Ambler, Mr & Mrs S. Young, **North-East Scotland**: Dr G. Farquharson, Mr S. Fraser, Mr G. Peterkin, **Stewartry**: Mr G. Conway, Mrs F. Griss, **Tayside**: Mr P. Baxter, Ms C. Harkess.

Scottish Birdwatchers' Conference: 'Northern Seas & Coasts'

21 March 2020, Elgin Town Hall. To book, visit www.the-soc.org.uk

SOC Annual Conference & AGM

20–22 November 2020, Atholl Palace Hotel, Pitlochry. Programme and booking information will be included with the June issue of *Scottish Birds.*

Waterston House

Art exhibitions: '*Kindred Spirits*' 22 February–1 April 2020. This group exhibition, focusing on African wildlife, brings together work by Carol Barrett, Graham Catlow and Frances Richardson alongside sculptures by Carol Read and Ricard Ballantyne. The title of the exhibition, 'Kindred Spirits', refers to the strong bond that the artists feel for the animals they depict. The three painters are also connected with Edinburgh Zoo where they worked or were Artist in Residence. A member of the conservation team at the zoo will give a talk at Waterston House during the exhibition (check the SOC website for details).

Plate 22. Etosha Guardian. © *Carol Barrett*

Carol Barret has been a professional wildlife artist for over 30 years. A fascination for African wildlife, particularly elephants, grew from an initial visit to Kenya in 1990. She lives and works in Edinburgh but travels regularly to Africa to study, sketch and photograph wildlife. She is a committed conservationist and helps raise funds for conservation through her art. The work in this exhibition is inspired by trips to Zambia and Ethiopia. Carol relies on these field trips to sketch and take photographs that she then develops as paintings in her Edinburgh studio working in a range of media: watercolour, acrylic, pastels and oils. Carol was Artist in Residence at Edinburgh Zoo.

Graham Catlow is a self-taught artist whose artistic inspiration stems from caring for animals in zoos, in particular during a long career at

Plate 23. The Next Generation. © *Graham Catlow RZ*

Plate 24. The family. © *Frances Richardson*

Edinburgh Zoo. Graham's particular insight into the behaviour and individual personalities of the animals, influences his work. He aims to capture their individuality and thinks of himself as producing portraits of the animals, often using pastels as his favoured medium.

Frances Richardson was born on a farm on the edge of Exmoor. She has always drawn animals and is happiest in their company. Frances was awarded the Andrew Grant Travel Scholarship to study with indigenous artists in Kenya where she has returned to draw ever since. Indeed, the work in this exhibition was produced on recent trips to Kenya. Frances works directly from life, drawing and painting in watercolours, aiming to capture the energy and spirit of her subject. She lives in East Lothian where she also draws regularly the local farriers and the life on local farms. She was the first Artist in Residence at the Edinburgh Zoo.

Carol Read and Richard Ballantyne have been collaborating since 2013 to create ceramics sculptures inspired by wildlife. The work is made using the Raku technique, an ancient Japanese way of firing ceramics, which produces unpredictable effects in crackling the glazed surface of the ceramics.

Joint Exhibition: John Threlfall SWLA and Esther Tyson SWLA with ceramics by Pascale Rentsch, 4 April–12 May 2020

We are delighted to welcome back a regular exhibitor to Waterston House, John Threlfall, this time in a joint exhibition with Esther Tyson, accompanied by ceramics by Pascale Rentsch.

John recently moved north to Aberdeenshire, and this new work reflects this change of landscape and wildlife. From the coastal fringes of the Ythan Estuary, along the River Dee and the adjacent farmland, into the great Caledonian pine forests and extensive birch woodlands and up to the Cairngorm Mountains, these are the landscapes and environments that form his new playground. This new adventure has been documented in pencil, pastels and watercolour field sketches and worked up in the studio into pastel studies. The excitement of discovering a new area is palpable in the bold use of colour and the energy of the mark making.

Born in Cumbria, Esther Tyson studied at Cumbria Art College, the University of Wales and the Royal College of Art (London). Whilst at the RCA, Esther won a travel scholarship to study large carnivores in Slovakia. This trip ignited her passion for travel as well as drawing and painting wild creatures in their natural environment. Other trips followed: to the Seychelles (painting under water!), Cambodia, Senegal, Turkey, working on projects organised by organisations such as BTO, Birdlife International and SWLA. Esther is based in the South Peak District and is taking the

opportunity presented by this exhibition to travel to the Highlands and catch new sights and subjects. Esther recently won the Terravesta Award at the SWLA Annual Exhibition in 2019.

Originally from Switzerland, Pascale Rentsch is based in Haddington. She works in clay, drawing her inspiration from natural forms (fauna, flora and landscape). Pascale creates one-off ceramic vessels and vases that bring nature into the home. Although Pascale is a familiar face at Waterston House, where she often accompanies her husband, Darren Woodhead, this is her first exhibition with us.

Spring Optics Demo day: Sunday 19 April, 10 am–4 pm Free event. Come along to try out a wide range of binoculars and 'scopes in field conditions. If there are any models you are particularly keen to look at, email Stuart Rivers at birdingofficer@the-soc.org.uk and we will do our best to have these available for you on the day to try.

Plate 25. Jane Allison's leaving do, Waterston House, 7 November 2019. © *Zul Bhatia*. Left to right: James Main (former President), Vicky McLellan (volunteer), David Heeley (then Secretary), Kathryn Cox (Membership Officer), Rosie Filipiak (Librarian), Jean & Bill Torrance (volunteers), Scott Paterson (Guided Walks Organiser), Stan da Prato (volunteer), Jane Allison (Development Officer), Andy Thorpe (Treasurer), Wendy Hicks (Administrator), Susan Horne (former Librarian), Fiona Corbett (volunteer), Mairead Lyons (Finance Officer), Lesley Creamer (Vice President), Caroline Gordon (Management Committee/Fife), Laura Gressani (Art Exhibitions Coordinator), Stuart Rivers (Birding Officer) and Fiona Mclean (Management Committee/Clyde).

Plate 26. Alyssa Parker. © *Kathryn Cox*

Staff updates: Jane Allison, Development Officer (maternity leave). We are delighted to announce that Jane had a healthy baby girl on 11 December. She and husband James have named her Rowan and Council wishes the new parents all the very best and wish to acknowledge the tremendous amount of work Jane did in the run up to her maternity leave to facilitate a comprehensive and meticulous handover to colleagues. Jane is due to be on maternity leave until mid-November 2020.

Alyssa Parker, Communications Officer (maternity cover). Email: communications @the-soc.org.uk. Alyssa joined the team of staff at HQ in November, working three days a week (Monday–Wednesday) to cover the Club's communications: website, mobile app, promotion of branch activities and social media. Alyssa

Plate 27. Corin Woodhead receiving his 'Martin Garner Spurn Young Birder' prize, Spurn, Yorkshire, 7 September 2019. © Lizzie Bruce. Left to right: Andy Clements (BTO), James King (winner 14–16 category), Corin (winner 11–13 category), David Lindo and Per Alström. © *Lizzie Bruce*

studied Creative Advertising and has several years' experience in communications in the wildlife charity sector. Originally from Michigan, USA, Alyssa is a keen birdwatcher and she currently lives with her husband in Edinburgh. Earlier this year, she became a self-published author of a children's book *A is for Albatross, B is for Bufflehead,* which follows a puffling around the world after he gets lost at sea. It ties in some of her favourite birds from the US and further afield, and from her new home here in Scotland!

Change of recorder - Highland

The new recorder is John Poyner, email: highlandrecorder@yahoo.com and mobile telephone: 07875 094666. John took over from Peter Stronach on 1 January 2020. Council thanks Peter for his work as recorder over the past three years.

SOC/Isle of May Bird Observatory Young Birders' Training Course

This successful SOC/Isle of May Bird Observatory initiative has now run for six years, being shortlisted for the RSPB's Nature of Scotland awards. With the Club's Development Officer on maternity leave, it was felt that this year would be a good opportunity to take stock and carry out an in-depth review of the project. As such, there will be no YBTC this year but we look forward to offering the course to aspiring young birders again from 2021.

'Martin Garner Spurn Young Birder of the Year' award 2019

Congratulations go to Corin Woodhead of Haddington, Lothian who won the 'Martin Garner Spurn Young Birder' award 2019, a national award for young ornithologists aged 16 and under.

Each year, the Spurn Bird Observatory Trust and the BTO host the 'Martin Garner Spurn Young Birder' event. After a preliminary online round, where applicants showcase knowledge of birds, six finalists are chosen to attend the Spurn Migration Festival in September. Their assessment involves seawatching, experiencing visible migration, watching birds on the Humber and answering additional questions on topics such as migration, taxonomy and bird calls. Congratulations to Corin on winning this prestigious award.

2019 Sightings - a reminder

If you have not already sent in your sightings to the local recorder, or done this via BirdTrack, then please do so asap. Bird reports play a major role in documenting the local status of our birds, with huge conservation/ protection value for opposing threats to important habitats.

Corrections

David Parnaby, the warden at Fair Isle Bird Observatory, has pointed out that the recent Calandra Lark write-up (*Scottish Birds* 39: 372–373) missed out the Fair Isle record on 10–13 May 2016. The North Uist bird in 2019 is therefore Scotland's 11th.

The photograph of the Collared Flycatcher on the Isle of May (Plate 293 on page 354) should be credited to Jess Bell.

OBITUARIES

Mike Peacock (1953–2019)

Mike Peacock died on Islay in early September 2019 following a brave fight against cancer; he will be greatly missed. Mike grew up in Nottingham and started birding in his teens, ringing with the South-West Notts Ringing Group and becoming involved with the Wash Wader Group in the 1970s. An early visit to Cape Clear Island in Ireland gave him the 'island bug' which developed further when he took up posts at Bardsey Bird Observatory (1975, 1976, Assistant Warden 1978 and 1979) and Fair Isle Bird Observatory (Assistant Warden 1977).

He returned to Nottingham and received a horticultural training, which he used to good effect in agriculture. However, the island bug began to bite again and in 1984 he moved north with his partner, Val, soon to be his wife, as she took up a nursing post on Fetlar in Shetland. After a few years working as a fencing contractor and with the island crofters during the winter and on bird surveys during the summer, he became the RSPB Warden on the island. Here he was involved in helping the last of the Fetlar Snowy Owls and habitat improvements which reversed the declining population trend of Britain's remaining Red-necked Phalaropes. It was here that he and Val found Britain's first ever Chestnut-sided Warbler.

His hard work and enthusiasm were soon recognised within RSPB and Shetland's loss was Argyll's gain when he and Val moved to Islay in 1988, where Mike took over responsibility for the Gruinart Reserve. This led to a series of changes at Gruinart, first, with RSPB taking the farming back 'in hand' and then moving the focus of the reserve from a single species (Barnacle Goose) to providing conservation benefit for a wider range of species. He drove forward the development of 'the Floods' at Gruinart providing optimum habitat for many waders, principally Lapwing and Redshank, and elsewhere on the reserve 'corners' were made for Corncrakes. Through his encouragement and perseverance further reserves were acquired on

Plate 28. Mike Peacock ringing Choughs, Bardsey, Gwynedd, 1978. © *Peter Roberts*

Islay by the RSPB at Smaull and the Oa, and elsewhere in the Inner Hebrides he set up leases and management agreements with farmers and crofters to help Corncrake, Chough and other species. As a ringer, he also monitored the populations of Barn Owls and Hen Harriers on Islay with Malcolm Ogilvie for the Argyll Raptor Study Group.

Mike travelled overseas extensively. He helped on expeditions to Greenland on White-fronted Geese, and used his first sabbatical to join a large-scale wetland bird survey in Tanzania. Other sabbaticals were spent setting up a monitoring and conservation programme for the Vanuatu Megapode at the invitation of the island government and surveying remnant (post-fire) scrub in the huge Gluepot reserve, South Australia, for the endangered honeyeater, the Black-eared Miner.

Plate 29. Mike Peacock, Oronsay, Argyll, 2007. © *David Jardine*

In 2000, Mike and Val moved from Islay to Oronsay, vicariously swapping roles with James and Sally How to allow them to raise their daughter on a larger island. Here, and on the adjoining island of Colonsay, Mike's efforts on Corncrake conservation saw the population rise from 32 calling males in 2000 to 86 in 2014. Some of the key conservation management was carried out during the harsh winter months with the outdoor feeding of cattle in all weathers, and during the early spring included the use of small boats to carry out eradication of rats from the islets around Oronsay which he completed with the help of Kat Snell. These efforts for Corncrake and his work for Chough were recognised when he was Highly Commended in the Species Champion section of the Nature of Scotland Awards (NoSA) in 2015, when he and Val also received the NoSA Lifetime Achievement Award for their work to support a wide range of species including Irish Ladies Tresses *Spiranthes romanzoffiana* and mining bees *Coletes* spp. on Scotland's islands.

In addition to his contribution to habitat management, an enduring legacy of Mike's work was his nurturing and coaching younger generations of conservation managers. Those involved under his wing in the last three decades are now making a difference throughout the country (Strathbeg, Galloway, Strontian, Dorset to mention a few) and worldwide (Antarctica, Denmark...).

Mike's life was celebrated by his family and his many friends at an event at Gruinart in mid-September, but the birds weren't missing - a White-tailed Eagle (another species he had been involved in monitoring in recent years) flew past the graveyard at the end of the service. Mike is survived by his wife, Val, and his sister and brother, Tina and Peter, and their families.

David Jardine, Peter Roberts and Dave Beaumont

Jon Hardey (1950–2019)

Jon, an expert on Peregrines and other upland birds of prey, died on 19 July 2019 in Aberdeen Royal Infirmary after a long illness. He was a founder member of the North East Branch of the Scottish Raptor Study Group, a number of remarkable and feisty specialists studying the ecology, behaviour and changing fortunes of birds of prey. For several years Jon chaired the group.

Jon specialised in Peregrines, and was encouraged to do so by his mentor, the late Dr Derek Ratcliffe, who wrote the acclaimed monograph *The Peregrine Falcon* (1980, 2nd edition 1993). The north-east Scotland Peregrine population was critically important in Derek's classic unravelling of the effects of agricultural pesticides in eggshell thinning and catastrophic breeding failure in the 1950s and 1960s. That was because the Peregrine populations in the Deeside and Angus hills, and in Speyside, functioned as a 'normal' population in one of the few areas in Britain with very low contamination risk. Building on the intensive survey work of the late Doug Weir and Adam Watson, and more recent monitoring by Roy Dennis and others, Jon sustained the Peregrine monitoring effort, which provided a benchmark against which the recovery of other populations could be assessed as restrictions in the use of cyclodiene pesticides took effect in 1962–64.

In 2003, Jon and colleagues published a key paper on variation in breeding success of Peregrines in north-east, central and south-west Scotland. Covering the period 1991–2000, and published in the book *Birds of Prey in a Changing Environment* (with a Foreword by Derek), this paper was one of the first to show that in more recent years poor breeding success was linked to high levels of criminal persecution associated with grouse moors. Even more up-to-date work published in *Scottish Birds* has shown an on-going decline in the Peregrine population in the eastern Cairngorms associated with intensive management for driven grouse shooting, but a modest increase on the coast.

Plate 30. Jon Hardey, North-east Scotland. © *Lorna Hardey*

Arguably Jon's greatest achievement came with the establishment of the award-winning Scottish Raptor Monitoring Scheme, founded in 2002 in response to a government-led UK Raptor Working Group Report published in 2000. This recommended a range of actions on raptors, including the development of systematic monitoring methods. Jon was commissioned to lead a team producing a field guide for raptor surveys and monitoring, which was duly published in 2006. The success of *Raptors: a field guide for surveys and monitoring* was phenomenal, with the book reprinted twice in 2007, and reaching a third edition by 2013. It set the standard for formal monitoring of birds of prey, and the field methods have been adopted across many European countries. However, this success rested on two of Jon's great strengths: first, his experience and exceptional skills in raptor fieldwork; and second, his strong connections with scores of raptor specialists who were

willing to share their nuggets of knowledge and experience - not something done lightly. Jon was enthusiastic, highly motivated and persistent in putting to excellent use his and others' first-hand experience and knowledge of raptors, particularly Peregrines.

Jon had an uncanny ability to build and sustain relationships with landowners, factors and keepers on shooting estates which enabled him to gain access on private estate roads. A keen and experienced bird ringer, his skills as a naturalist ran to dissecting in detail the prey remains in Peregrine eyries to prove to doubting keepers that Peregrines didn't just eat grouse. Jon was instrumental in setting up 'Operation Falcon Watch', a joint agency approach to monitoring Peregrines, ostensibly to stop egg collectors but also to look out for raptor persecution.

Born on 24 January 1950 in Edgbaston, Birmingham, Jon's father, Ronnie, was a member of No. 6 Commando and was active in the D-Day landings, for which he received the Military Cross; he returned to train commandos at Achnacarry, Lochaber, before becoming a Company Accountant. His mother, Margaret, was a WRNS driver in the Second World War, and became active in the British Horse Society.

Attending Larchfield Prep School in Helensburgh, then Sedbergh School in Yorkshire, Jon went to Queen's University in Belfast, where in 1973 he took a BSc Honours degree in Zoology. He loved the student life and immersed himself in the political and cultural scenes of Belfast. Moving to Aberdeen to take a MSc degree in Ecology in 1975, Jon met his wife-to-be, Lorna, on a field trip to the Bettyhill Field Station, in north Sutherland. They married in Tain, Easter Ross, on 28 June 1975. During family visits to Tain, where Lorna's parents ran the well-known shop, Forsyth's, Jon studied birds in the north Highlands where he met the renowned ornithologist, Desmond Nethersole-Thompson in nearby Culrain, Sutherland. Jon and friends provided invaluable intelligence on the status of rare nesting birds which Desmond included in his later books.

Professionally, Jon was Principal Teacher of Biology at Westhill Academy, Aberdeenshire, from 1984 to 2000. Revered by generations of students for his inspirational teaching and hands-on laboratory classes, Jon was par excellence the gruff master who gave vent to wonderfully humorous and lasting memories which many pupils have since described as helping define their chosen paths. Described by one former pupil as 'a modern-day Hagrid', Jon sustained his pupils' enjoyment with a menagerie of study animals, including 'Cowpat' the toad, and 'Boris' the tarantula!

On retirement, Jon took on various commissions from Scottish Natural Heritage and wind energy companies, specialising in surveys of montane birds, raptors and bats.

Outwardly entertaining in describing the antics of his mainly bearded field colleagues, Jon was shy and diffident. Sometimes impossibly incoherent with his distinctive burr, Jon could frustrate and excite in equal measure depending on whether or not you understood him. When one of us met him at a Fleetwood Mac concert in Glasgow, a complaint that the acoustics were poor was met by Jon's response: "Man, they were just fine!" He was a fervent follower of the national rugby team, and enjoyed the socialising, which often meant very late arrivals at Murrayfield. Kind and pointedly playing up others' special strengths, Jon could be both outrageously irreverent and schoolmasterly solemn.

The hills will be that much emptier without him.

Jon is survived by his wife Lorna, sons John and Paddy, daughter Alison, sister Nicky, and brother Mike; his other brother Rodge predeceased him.

Des Thompson, Mick Marquiss, Robert Rae and Logan Steele

Plate 31. Bishop Loch, Clyde, November 2019. © *Jimmy Maxwell*

My journey towards 'patching' in the Glasgow area

Probably like many people in the birding world, my love and fascination for birds, and to be honest all things wild, has been and continues to be, a long, slow and evolving learning curve. A little summary of my journey may strike a chord with some?

From a very small child I was captivated by bugs and beasties. My mother fed the birds in our garden in suburban East Kilbride and I was in awe of the numerous Greenfinches lined up on our washing line, squabbling to get their turn on the peanuts. The seed was planted.

In primary school a friend was also interested in birds. We walked about without binoculars seeing what we could. I vividly remember my excitement at seeing my first Ringed Plover on a small pool in the Hairmyers area of the town. My friend introduced me to the YOC, which I joined.

I continued my interest in birds and by my early twenties purchased my first pair of binoculars and joined the Calderglen bird club after reading an advertisement in the local rag. A whole new world opened up with talks and field trips.

It was during 1999 at the age of 32 that I turned to the dark side and became a twitcher and still twitch to this day, please forgive me? I could say so many positive things about this wonderful aspect of birding, but maybe another day?

In 2013, the moons aligned. My family was getting older and more independent, I had more birding time and I was twitching less, as I had seen by then a good many of the British list and as a result my bird knowledge had improved considerably. But coincidentally I was press ganged into owning our first family dog. Bruno being a short-haired Collie, needed walked and so I contemplated how to combine dog walking with birding?

By this time, I was aware of 'patch' birding mainly through talking with other birders, and through my subscriptions to the BTO and SOC I discovered the word 'tetrad'.

The hunt was on for my own patch (Plate 32). I spent a few months walking various areas near to my home in Tannochside. Newlands Glen, a nice wee three-mile circuit, produced Woodcock, Tawny Owl, Dipper, Kingfisher, Goosander and Spotted Flycatcher, all within a 15-minute walk from my home - birds I didn't realise could be observed on my doorstep, but it just wasn't big enough. Viewpark Glen was another candidate but this, whilst having some great walks, just didn't have enough variable habitat. Chatelherhault Country Park and Strathclyde Country Park were also given a try but were too busy for my liking and the latter too well watched. This applied also to Baron's Haugh RSPB reserve.

Then I remembered twitching what were two Scottish firsts for me some time ago - a drake Garganey and a Wood Sandpiper at the Gartloch pools - bingo!

Initially, my focus was on Gartloch and the immediate area. I had initial success and found Wood Sandpiper, Water Rail, Short-eared Owl and Yellow Wagtail all within my fist few months and was delighted by the sound of several Sedge Warblers and Grasshopper Warbler in my first spring (Plate 33).

Plate 32. Whinchat, September 2015. *© Donald Wilson*

Plate 33. Grasshopper Warbler, May 2016. *© Heather Kerr*

The love affair was well and truly on. As time went by, I realised that there was a network of paths and slowly began to understand how to cover the whole area and discover its potential. After buying a 1/25,000 scale OS map, I marked out a 2-km tetrad from each side of Gartloch pool, the 'patch' was now created and then set up on Birdtrack.

The double-tetrad covers three lochs, all within the confines of the Seven Lochs Wetland Park organisation, the largest of its kind in Scotland. On the west side is Frankfield Loch (NS 6568) - a shallow loch with wide areas of waterlogged shrubs and often showing extensive mud. Its surrounds are of fen, scrub, herb-rich grassland and trees, with houses nearby (Plate 34). Then Gartloch (NS 6767) - a shallow loch with marsh, fen, rough grassland and trees. Smaller marshy pools are close by (Plate 35) Lastly to the east, Bishop Loch (NS 6967) - the largest loch, its habitat including reedmace fens, scrub, woodland and extensive *Phragmites* reedbeds (see above). Between the lochs is deciduous and conifer woodland, marshland, open wild grassland, farmland with seasonal cut meadows, some cattle grazing, horse paddocks and housing estates including the redeveloped Gartloch Hospital. In short, almost every habitat type you could hope for in an urban setting apart from rivers.

Being bordered by Easterhouse and some other housing estates, it has its own challenges such as fire-raising, drinking dens, illegal poaching, reckless anglers and is under intense pressure from development, mainly housing. I have continually highlighted these issues and tried to eradicate and educate wherever possible. About three years ago by coincidence I met a long-standing member of the Clyde SOC, Tommy Daniels, who lives in the area and we now have become firm friends. Through Tommy, I discovered that another stalwart of the Clyde SOC, Ian Gibson also loved the Gartloch area and was instrumental in the development of Gartloch Loch and the saving of Bishop Loch from development.

Like many 'patches' it is all about the long haul with many hours put in, miles of walking and can be hard, unrewarding birding. However when you look at the culmination of your efforts it can be surprising what you discover!

Since April 2013, the area has produced at least 125 species of bird, some found by myself, with some locally and nationally important records such as Garganey (Plate 36), Osprey, Little Egret, Little Gull, Mediterranean Gull, Bittern and Little Ringed Plover and 2019's long-staying Blue-winged Teal. On an annual basis, a

Plate 34. Frankfield Loch, Clyde, October 2019. © *Jimmy Maxwell*

Plate 35. Gartloch Pools, Clyde, January 2019. © *Donald Wilson*

hundred species or more have been recorded with significant breeding records such as Reed Bunting, Skylark, Meadow Pipit and Grasshopper Warbler, and an impressive wintering population of Shoveler, with over 40 birds on Frankfield. This year, I decided to attempt to list individual singing warblers and again was amazed by the results. 72 Willow Warblers, 18 Whitethroats, five Chiffchaffs, 14 Sedge Warblers and 18 Grasshopper Warblers. Unfortunately no singing Garden Warbler but at least two territories have been identified in most years. Not bad for what is largely an unmanaged urban site?

By the time you read this article spring will be well under way. In my first year of recording, it was the first week of April when I conducted my first walk in the Gartloch area and would urge as many of you as possible to look for your own territory to record. It doesn't need to be as big as the one I cover and if you watch the same area for long enough throughout the year and at differing times, I guarantee you will be amazed what you discover!

Plate 36. Garganey, September 2018. © *Donald Wilson*

In summary, I have found 'patching' extremely rewarding and feel I am contributing to local and national birding statistics, as well as finding the odd 'good' bird. Oh, and Bruno loves his wild urban walks.

Donald Wilson, Tannochside, Uddingston, Clyde
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The Werritty Report from the Grouse Moor Management Review Group

In May 2017, the Scottish Government's Cabinet Secretary for Environment, Climate Change and Land Reform, Roseanna Cunningham, announced the setting up of an expert group to look at managing grouse moors sustainably and within the law. This had been triggered by the SNH publication of the fates of 40 out of 131 satellite-tracked Golden Eagles in Scotland which had disappeared in suspicious circumstances between 2004 and 2016, mostly on or adjacent to grouse moors. The group, chaired by Professor Alan Werritty, a geographer from Dundee University, comprised six experts reflecting grouse shooting and estate management and academic research augmented by four specialist advisers. The group met on 18 occasions between January 2018 and July 2019, and also took evidence in the field from a variety of grouse shooting estates and one estate managed by a conservation charity. Responses to a questionnaire circulated to key stakeholders provided further evidence, as did oral hearings with nine experts who collectively represented a wide spectrum of views on grouse shooting.

The report was published in December 2019 after considerable delay attributed to ill health and the complexity of the task. The general reaction among conservation groups has been that it does not go far enough. This was predictable given the make-up of the committee which included both shooting and conservation interests. So, the only way to get a unanimous report was to delay any decision on licensing for five years. At least this implies recognition by the shooting side that there are serious problems over illegal killing of protected birds on some moors.

The full report can be read at www.gov.scot/publications/grouse-moor-management-group-report

Its main points are:

- In accordance with the remit to "ensure that grouse moor management continues to contribute to the rural economy" it is not recommended that grouse shooting be banned. However, a licensing scheme will be introduced for shooting grouse within five years if there is no marked improvement in the sustainability of grouse moor management, as evidenced by the populations of breeding Golden Eagles, Hen Harriers and Peregrines on or within the vicinity of grouse moors.

- A Code of Practice on grouse shooting advising best management practices is to be produced with SNH having oversight and ownership.

- There should be no change in the legal status of any bird of prey species in Scotland.

- Muirburn should have increased legal regulation. Training should be required for any land manager involved in setting fires.

Plate 37. Muirburn, North-east Scotland, February 2006. © *Ian Francis*

Plate 38. Red Grouse, North-east Scotland, February 2009. © *Harry Scott*

- The brood management programme for Hen Harriers in England should be monitored, and if it is successful in producing an increase in the numbers of Hen Harriers, then consideration should be given to introducing a similar programme in Scotland.

- As much as possible should be done to change the culture of grouse moor management to accept more loss of grouse to avian predators and to allow these predators to nest locally.

- It should become an offence to operate a trap without an operator having successfully completed a training course. A trap operator should apply to their local police station for a unique identification number which must be attached to any traps that are set.

- Maximum penalties at least for the more serious wildlife offences should be increased.

- Land managers should report annually to SNH the number of Mountain Hares present (using a standard counting method) and numbers shot in their area. Should the conservation status of Mountain Hares prove to be 'unfavourable', then a licensing system for the shooting of Mountain Hares should be introduced.

- SNH should publish a Code of Practice on the use of medicated grit to reduce the worm burden in Red Grouse.

- Food Standards Scotland should undertake work to identify the levels of flubendazole residues in grouse in the human food chain and SEPA should devise a monitoring programme to ascertain whether flubendazole residues exist in water bodies downstream of moors.

Compiled by Stan da Prato from various sources

Gyr and hybrid falcons released into the Scottish countryside

Birders have reacted with concern at the admission by SNH following a Freedom of Information request by Mark Avery that they issued a licence on 9 May 2019 for "no more than 150 Gyr Falcons to be released (at a site in Moray) between 1 June and 15 September, with no more than 40 to be released at any given time." This is a process known as wild hacking, a training method used by falconers to help young falcons achieve their 'hunting potential' by releasing them into wild environments to gain experience and improve their fitness. The falcons are then recaptured. In this case, the birds are being trained for sale and export to the Middle East.

As Gyr Falcon is a non-native species in Britain, a licence is required for their release. A condition of the licence was that birds had to be fitted with GPS devices and radio transmitters, and that SNH should be notified immediately if any birds moved more than 2 km from the release location for "longer than 12–36 hours". SNH required a bird survey of the area before approving the licence. This was carried out on a single day and covered an area within 1 km of the release site only, requiring the collection of evidence of breeding Schedule 1 species in the vicinity. All the Gyr Falcons were close ringed and accompanied with the relevant documentation for commercial movement. Each 'hack' of young falcons runs for three weeks.

In practice, 122 Gyrs which were bred at a facility in the Borders were released in Moray in 2019 and all are said to have been recovered or died confirmed by a letter from SNH to Tom Brewis. SNH also state this is the first time they have issued licences for wild hacking and they will be analysing how they work and adjusting accordingly before deciding to issue any future licences. They were aware that Curlews and Lapwings are present within the areas affected; however, the hacking took place from late June to late August, which is after the most vulnerable period for moorland waders.

It is reported that there was an unlicensed release in 2018 that also included hybrids between Gyr and both Sakers and Peregrines.

A meeting between local residents and SNH was planned for 9 December 2019 but, Avery says, was postponed when the organisation found out that Wild Justice was planning to attend. This has now been reorganised for mid-January.

It has also emerged that another licence was recently granted for a similar number of Gyrs to be wild hacked in the Muirkirk and Lowther Special Protection Area in the south of Scotland. It's not clear if this then took place.

Some idea of the money involved comes from a website which sells to the Middle East with prices from £1,250 for some Sakers up to £12,000 for white Gyrs - these prices do include VAT!

Further updates will be published on Mark Avery's blog markavery.info/?s=gyr.

Compiled by Stan da Prato from various sources

Plate 39. The app team (left to right): Martin Cook, Jane Allison and Alan Knox.

Get off the beaten track! The free *Where to Watch Birds in Scotland* mobile app

In April 2019, the SOC ventured into new territory when it launched its first mobile app, *Where to Watch Birds in Scotland*. The *'Where to Watch...'* genre is one of the most prolific in ornithological publishing, with hundreds of printed and online guides to help beginners and experts alike to find the best places to enjoy birds. The SOC's totally unique, free, mobile app moves the idea on to a new level of convenience and functionality, showing sites across Scotland, with live mapping centred around your location, integrated sat-nav, recent bird sightings and instant updates.

It all began at a Council meeting in June 2016 when a suggestion emerged for a new book about birdwatching sites in Scotland. Immediately, Jane Allison, Alan Knox and Ray Murray were excitedly discussing how this would be great as a mobile app instead of in print. After the meeting, emails and ideas bounced back and forth and sample site accounts were quickly drawn up. Ray's untimely death later that year was a blow to his friends and to the project but Jane and Alan continued to refine and develop the structure the app might take. In May 2017, Martin Cook joined the team in the key role of editor and soon put in place a network of regional co-ordinators to recruit authors for site accounts within their areas.

It took until March 2018 to finalise a tender document explaining the technical requirements and describing in detail what the app was to do, complete with visuals of how the screens might look and how all the functions would operate. It was a steep learning curve. Mucky Puddle in Glasgow, who had recently rebuilt the SOC website, were awarded the development contract. They started work in the autumn of 2018 and did a terrific job converting our vision into a working reality.

The first stage was the creation of a Content Management System, a web site where contributors would enter details of each individual birding location, including the grid references necessary for the sat-nav links and other mapping. The app construction proceeded surprisingly quickly through the winter of 2018/19, in parallel with the writing and Martin's editing of the site accounts. Technical issues came and (mostly) went. Extracting species population data and distribution maps from the digital files of *The Birds of Scotland* was tedious and slow. Up-to-date figures for Scottish rarities were obtained from the database maintained by Keith Naylor.

Figure 1. The app has details of over 530 birding sites but there are still gaps: can you help fill them?

We were keen from the start that the app should encourage and promote bird recording, so links were built in to allow users to email sightings to the local recorders for each site, or to connect to BirdTrack, of which the SOC is a partner. A feed from BirdTrack back into the app giving recent sightings at each location is proving to be very popular though this only works where records are available. This feature will get better and better as more users submit their records through BirdTrack.

The app was launched on 11 April 2019. By the end of the year, it had been downloaded over 8,600 times by users all around the world. Most (95%) are in Britain but in any single month there have been users in 30–40 countries ranging from Argentina to Kazakhstan and the Philippines. About 2,000 people use the app every month and, in one average week in November, details of over 400 birding sites were looked at 4,000 times. Preliminary figures are showing interesting seasonal differences in the most popular sites visited in the app. Between the April 2019 launch and 4 November, the Highlands and Islands (especially Strathspey and Deeside) featured highly. Whereas, during 5–13 November, more sites closer to the main centres of population were visited.

Around 150 volunteers helped to create the app content and they are gratefully acknowledged on the SOC website. There were about 400 birding sites at launch and, nine months later, that number has raced past 530. More locations are being added all the time and sites can be revised and appear live in the app within moments. There are still notable gaps in coverage (see Figure 1 or the app itself) so if you are familiar with a site that should be included, (or revised) please get in touch with Martin at martin.cook99@btinternet.com.

Initial estimates suggested this was not going to be a cheap project but Council saw how it could encourage the enjoyment of Scotland's birds, as well as their study, documentation and conservation - all key aims of the Club. Making it free would help bring birding and an appreciation of the countryside to a new, younger generation, aiding beginners to start their adventure with birds and serving experienced users too. The app received financial help from *The Birds of Scotland Fund*, a donation from Glasgow Natural History Society and from legacies to the Club. The finished product is a tribute to the generosity of members and their legacies and shows what can be done for Scotland's birds with such special help.

SOC President Dr Ian Bainbridge has said "This has been a major project for the Club. We hope the app will help a new generation of wildlife lovers to enjoy exciting birds in the beautiful Scottish countryside. For anyone who didn't know where to start bird watching, this will show them the way. Even experienced birders will discover places and things they didn't know about. It's opening a completely new chapter in countryside access, with Scotland leading the way."

In December, the app won the *Birdwatch* magazine Birders' Choice Award **Product of the Year**, with nearly 60% of the poll. Thank you to everyone who voted! If you haven't tried it, the app is available as a download for smartphones and tablets from the Apple and Android app stores. There are links on the SOC website www.the-soc.org.uk/about-us/app

Alan Knox, Jane Allison & Martin Cook

BOOK REVIEWS

The book reviews published in *Scottish Birds* reflect the views of the named reviewers and not those of the SOC.

Glen of the Lapwing: wildlife on Glenquaich Estate, Perthshire. Keith Brockie, 2019. Published by Keith Brockie (see www.keithbrockie.co.uk/glen-of-the-lapwing), ISBN 978-1-5272-2583-1, 152 pages, hardback, £25 signed, direct from Keith Brockie gallery; £32 including p&p to UK.

Once again, Keith Brockie has put together a superb series of more than 100 of his delightful watercolour paintings in this, his eighth book. It is the result of a two-year project in 2016 and 2017 at the Glen Quaich Estate in Highland Perthshire, which is not far from his home. The estate is a family-run shooting and farming business managed sympathetically for the wide variety of wildlife that is found there and Keith's project had the landowner's full support. During his fieldwork, he recorded 111 bird species (which he lists in the book). The lower farmland and rough grazing support a large population of breeding waders, by far the most numerous of which is the Lapwing with over 137 pairs. Given the decline of Lapwings on farmland generally, this is a tribute to the management of the estate. Keith's paintings follow their breeding cycle through the spring and summer months, hence the title of the book.

Although the Lapwing is the main star of the book, a majority of the paintings are of other species. As well as more waders, the birds include Black Grouse, Grey Partridge, Short-eared Owl, Barn Owl, Golden Eagle, Black-throated Diver, Whooper Swan and Snow Bunting. There are some lovely studies of chicks among these. Mammals represented are Red Deer, Roe Deer, Blackface Sheep, Rabbit and several of Keith's favourite subject, hares (including one of Brown Hares and Mountain Hares feeding together at night in a field which is surely a rare event). Finally, there are two of Brown Trout and Toad. Keith's depiction of his subjects is, as always, meticulous and convincing, and I was particularly struck by the way in which he has captured varying plumage colouration of species like Lapwing and Black Grouse. This is a special book which is an important record of the current status of wildlife in what is clearly a special Highland glen. I recommend it.

John Savory

Handbook of Western Palearctic Birds: Passerines. Hadoram Shirihai & Lars Svensson, 2018. Christopher Helm, London, ISBN 978-0-7136-4571-2. Two hardback volumes in a slip case. Volume 1. Passerines: Larks to Warblers (648 pages); Volume 2: Passerines: Flycatchers to Buntings (623 pages). £150. Also available from the publisher as an ebook www.bloomsbury.com/uk/search?q=Handbook+of+Western+Palearctic+Birds&Gid=1

This two-volume boxed set is a photographic guide which illustrates 500 passerine species recorded within the Western Palearctic biogeographical zone: 408 are given a comprehensive

account in the text (each of 2–3 pages) and the rest (rarest vagrants) a similar, but brief, account. The authors are both acknowledged field ornithologists at the forefront of European/Western Palearctic bird identification, and this publication will become a standard reference for many years to come. In some ways it will take over from *Handbook of the Birds of the Western Palearctic* (BWP, Cramp *et al.*) as the 'go to' source of information for many birders. It differs from BWP in that it uses photographs integrated within the species texts rather than plates of illustrations grouped in blocks, and contains the latest information on bird identification and distributions. The page layouts are superb and a pleasure to read and browse.

The first volume (648 pages) covers larks, hirundines, pipits, wagtails, bulbuls, Waxwing, Hypocolius, Dipper, Wren, accentors, robins & chats, thrushes, warblers and 'crests' plus vagrants and the second volume (623 pages) flycatchers, Bearded Tit, babblers, tits, nuthatches & creepers, penduline tits, sunbirds, white-eyes, orioles, shrikes, crows, starlings & mynas, sparrows, weavers & waxbills, vireos, finches and buntings, plus vagrants. The books concentrate on identification with details of plumages, moult strategies, ageing and sexing, vocalisations and information about species/subspecies ranges plus maps. The common and

scientific names are generally those used in IOC and Howard & Moore checklists.

Somewhat surprisingly, the taxonomy followed is not that of any of the currently recognised international authorities (e.g. IOC or Howard & Moore 4th Edition) but is closer to the older Voous order. A number of species/subspecies decisions have been made by the authors that differ from current checklists, typically reducing the number of subspecies recognised, but they are not always rigorously argued or explained. As a consequence, readers will find that only the St Kilda subspecies of Wren (*T.t. hirtensis*) is retained, with the other Scottish island forms and north British mainland form (all recognised as separate races under IOC/BOU/SBRC taxonomy) subsumed into *T.t. borealis* along with birds from Ireland and NW Britain (including much of Wales). The *caliginosa* subspecies of Yellowhammer, *autochthona* Linnet, *hebridium* Dunnock, *hibernicus* Dipper and *zetlandicus* Starling, all forms found in Scotland, disappear without comment. Similarly, the British races of Chaffinch (*gengleri*), Bullfinch (*pileata*) and Goldfinch (*brittanica*) are also eliminated and perhaps most noteworthy for list-conscious birders is that Scottish Crossbill is relegated to being a subspecies (*scotica*) of Common Crossbill. What impact (if any) this has on future editions of the IOC/BOU/SBRC lists remains to be seen.

This publication has been long-awaited and does not disappoint for the sheer amount of up-to-date information on bird identification collated in each volume by the two outstanding authorities. There are over 5,000 photographs, most of which are excellent. A minor quibble is the inaccurate locations quoted in several captions (e.g. a photograph of the Wilson's Warbler on Lewis, Outer Hebrides in 2015 is credited to England - how dare they!). The publisher states that the photographs illustrate the range of plumages for each species of every race and morph in the region, no mean feat. These are complemented by superb text accounts. The differentiation between closely similar species is covered in the text (and in the extensive picture captions) and basic biometrics are given. Overall this is a phenomenal publication which enhances the treatments given in BWP, notably in the considerable update and revision of the identification material, excellent illustrations and the overall presentation and accessibility of data, with the latter all clearly demarcated under appropriate headings. Non-passerines will be covered in subsequent volumes due out in 2022/23.

It is tremendous value and deserves to be on the bookshelf of every serious European birder.

Stuart L. Rivers

The Eagle Owl by Vincenzo Penteriani & María del Mar Delgado, 2019. T. & A.D. Poyser (A. & C. Black), ISBN 978-1-4729-0066-1, 384 pages, hardback, £54.00.

The Eagle Owl has been the subject of much study across Europe in recent decades. This monograph details much of that work and covers distribution, populations, breeding, feeding, dispersal, habitat use, interspecific interactions, mortality, threats and communication. Eagle Owls may, or perhaps may not, become established in Scotland, so if you want to know why (or why not) and what to expect, this is the book to go to. The extensive literature cited throughout illustrates the comprehensiveness and quality of studies on the species. However, a couple of important subject areas appear not to have received the same treatment. Impacts on prey populations are barely covered (apart from where those are other predators and potential competitors) which maybe reflects lack of study. This is surprising given the levels of persecution the species has been and continues to be subject to, often because of perceived competition for prey species by human hunters. Also, some comments on risks associated with power lines and associated mitigation measures are surprisingly unsupported by published studies. While providing a very thorough coverage of current knowledge of the species, the text is quite dense with biological jargon. Some ruthless but sympathetic editing would have made the contents more readily accessible, but it is certainly worth persisting with. You will learn a lot and maybe even whet the appetite for new research should Eagle Owls become established here.

John Calladine

Also received:

Birds of Mongolia. Gombobaatar Sundev & Christopher Leahy, 2019. Bloomsbury, London, ISBN 978-0-7136-8704-0, paperback, 280 pages, £30.

Birds in Winter: surviving the most challenging season. Roger F. Pasquier, 2019. Princeton University Press, Oxford, ISBN 978-0-6911-7855-4, hardback, 304 pages, £25.

RINGERS' ROUNDUP

If you have any interesting ringing recoveries, articles, wee stories, project updates or requests for information which you would like to be included in the next issue, please email to Raymond Duncan at: rduncan393@outlook.com. Thank you very much to the British Trust for Ornithology (BTO) and the many ringers, ringing groups and birders who provided the information for this latest round up. Thanks also to the many bird watchers who take the time and trouble to read rings in the field or find dead ringed birds and report them.

For lots more exciting facts, figures, numbers and movements log on to: www.bto.org/volunteer-surveys/ringing/publications/online-ringing-reports.

Orkney Buzzards - *Stuart Williams*

Buzzards are rare breeders in Orkney, the current breeding population for the county is 13 breeding pairs. They first bred in the county in the early 1960s with a pair on Hoy raising a single chick. By 1966 birds were regularly breeding on Hoy with two occupied sites until 1972 raising ten chicks during this period. From 1973 to 2004, birds bred on Hoy on 43 occasions raising 37 chicks during this period. In 2005, birds bred for the first time on Mainland when a pair raised a single chick, in 2009 two pairs bred on Mainland, and I set up the Buzzard chick wing tagging project in 2010 to monitor the population and the colonisation of the county. As well as Hoy and Mainland, birds are now breeding on Rousay and Eday. Of the 13 pairs which bred in 2019, two of the breeding birds are tagged Orkney birds.

Since the tagging project began in 2010, 107 chicks have been wing tagged in Orkney, with 63 identified birds being resighted 183 times away from their natal areas. 15 birds have been sighted outwith Orkney, with 11 having their tags read.

The majority of sightings outside Orkney have come from Caithness, eight birds have been sighted there, the majority as would be expected in their first year. There is one record of an Orkney tagged chick which went on to breed in Caithness. One bird has been in Caithness on two different occasions after making the journey back to Orkney, the bird was a 2014 chick it was seen in Orkney in 2015 and 26 May 2017, it was then photographed in Caithness 4 July 2017, and then back in Orkney on 12 September where it was photographed at the same location where it had been on 26 May. It was still present there up to 20 October 2018 its next sighting was back in Caithness where it was again photographed on 15 April 2019.

The map shows the four long distance movements. Both of the North-east Scotland birds and the bird in the Republic of Ireland had their tags read or photographed. The bird in Perthshire was sighted on 28 September 2012, but the tags were not read, so could not be identified to an individual.

Figure 1. Buzzards ringed on Orkney and sighted elsewhere.

The bird which went to the Republic of Ireland was a 2012 chick and was seen in Ireland in 2014.

The first bird to go to North-east Scotland was a 2011 mainland chick, last seen in Orkney on 10 October 2011 and then in North-east Scotland on 2 December 2011. A 2019 chick from Hoy was last seen on Hoy on 5 September 2019 and then seen in North-east Scotland on 26 September 2019 and again on 13 October.

Plate 40. Red-tagged Buzzard 'B4' at Rhynie, North-east Scotland, 13 October 2019. © *Francis Buckley*

Guillemot, another example of the usefulness of digital photography

- Mike Harris

Each year, 250–300 Guillemot chicks on the Isle of May are individually colour-ringed as part of CEH's 40-year study on the population dynamics of the species. Although the main aim is to see how many of these chicks come back to breed in later years, we also get some interesting reports of our birds. Usually, these are birds washed up on tidelines but occasionally we get happier news.

The Guillemot is a typical seabird in that most chicks that survive to breeding age (5–7 years) return to the colony where they were hatched and so can be re-sighted back in the colony. We have only a single record of a bird returning to the colony the summer after it hatched but during the next two seasons immature birds congregate mainly on the sea rocks before visiting the breeding areas a year or so later. During this period of immaturity, some Guillemots visit other colonies and recently, we received from the BTO Ringing Office, a photograph of a flying Guillemot taken in June 2019 at Helgoland, the only German Guillemot colony. Only when Norbert Uhlhaas, the photographer, looked at the image on his screen did he realize that the bird had both

Plate 41. A Guillemot reared on the Isle of May photographed at Helgoland, Germany in June 2019. © *Norbert Uhlhaas*

numbered and colour-rings but neither was completely decipherable. However, together they showed it to be a Guillemot ringed as a chick on the Isle of May in 2015. This appears to be the first colour-ringed Guillemot seen at Helgoland (Jochen Dierschke, IfV-Vogelwarte Helgoland). This individual has not been seen at our colony since it fledged so it was possibly considering emigrating to remain in the EU. However, there is still time for it to change its mind since several Isle of May-reared Guillemots sighted at other colonies early in their lives have later returned home to breed.

Starling RAS (Retrapping Adults for Survival) BTO project

- Ben Herschell, Tay Ringing Group

I have been catching and ringing Starlings in Montrose (Angus & Dundee) for some 15 years. Initially, numbers were small and limited to those caught by mist net when attracted by other birds to feeders. It became apparent that numbers would allow me to undertake a colour-ringing project to determine the movement and dispersal of the Montrose birds. With a decline in numbers nationally, and as numbers increased in my garden, I began a Retrapping Adults for Survival (RAS) project which at the time was the only Starling RAS in Scotland, and one of only a few in the UK. The addition of colour-rings to aid identification without the need to recapture, and the help of a couple of 'starrie spotters' made for a very good number of re-sightings. The total number ringed by the end of 2019 was just over 5,600 and although I now have regular spotters in only one area of the town who send me monthly sightings, the total number of sightings is over 13,000 (this includes sightings of birds made on multiple days).

I have only ever ringed one brood of pulli. Bar a few every bird has been ringed in my garden in Wellington Park, Montrose. It is a central location in the town and a short distance from the golf links where they seasonally feed on leatherjackets, the larvae of crane fly or 'daddy longlegs'. The size of my garden and lawn allows the deployment of mist nets, Potter traps and whoosh nets. I started by mist netting however the birds quickly become net shy. They are also not as easy as some birds to extract from a net as the carpal joint can get caught in the mesh and their extended hind claw can take a clump of net as it closes tight making you wish you had four hands at times. They can also make very loud alarm calls which fortunately now the neighbours realise is not the local cats with a captive bird. From the initial mist netting, I started using Potter traps which are cage traps triggered by the bird as it enters to get at the bait. Any bait will do, but I usually use bread or crisps. The Potter traps are particularly effective when the juveniles appear as they are not very savvy and wander straight in, whilst the adults desperate to feed their calling young also go in time after time to get the bait. My favoured method of capture of late has been a whoosh net, which is set on the ground tensioned with elastic bungees, and when triggered by a pull of a cord 'whooshes' up and over the birds, holding them ready for extraction. In 2019, using this method, I captured 806 new birds in my garden. The favoured bait for this method is dried mealworm which they can't resist, nor can the local Blackbirds and Robins.

Regarding movements the vast majority appear resident to Montrose. Of those re-sighted or recaptured, some are years later, some a matter of hours in a different part of the town on the same day. One bird, LC53738 with colour-ring yellow 'VK', has been seen on 738 separate days between May 2013 and December 2019 (Plate 42).

On Figure 2, I have chosen to show only those birds which have been seen greater than 5 km from Montrose as the villages of Hillside and Ferryden are practically joined to the town these days. The vast majority of the birds were re-sighted in the same year as initial capture, or the year following that. Of the few birds re-sighted a number of years later, most resurfaced 6, 7 or 8 years later. The non-local movement bird with the longest gap between ringing and re-sighting was seen at Lumphanan, near Aberdeen, 2,880 days, or nearly eight years later. It is not known at what point the bird made the movement. The 'local' bird with the longest gap between ringing and re-sighting, in this case it was a recapture, was 9 years, 7 months and 22 days. Of course, it is not known where this bird was in the intervening period either. Most are

sightings of single birds, although not unexpectedly St Cyrus just north of Montrose has 15 sightings, Usan just to the south of Montrose 14 sightings, with Newburgh to the north of Aberdeen three sightings.

Although a very few birds were unsexed at the time of ringing, the split between sexes of those having moved is nearly 50/50, with 34 females and 30 males. As a rough direction, 19 females went south, 14 north and one west. For males, this was 19 south and 11 north, so not much difference between the sexes.

With a few exceptions the sightings are by non-ringers and shows the value of building a rapport with local bird watchers who are always very interested to know the details of the birds they have seen.

Plate 42. Starling 'VK'. © *Andy Wakelin*

Figure 2. Starlings ringed in Montrose (Angus & Dundee) and sighted elsewhere (>5 km).

Twite on the edge - *Ben Herschell*

The March 2019 Ringers' Roundup featured Twite colour-ringing with a request for sightings. I recently received a report of a Twite colour-ringed during winter 2018/19 at Montrose Basin, Angus sighted in early September 2019 at Caolas on Vatersay in the Outer Hebrides - the most westerly continuously inhabited place in Great Britain (population 79... there are probably more Twite than humans there)! Thanks to Bruce Taylor and Ian Thompson for the sighting. A Grampian-bird ringed at Glenkindie, Donside was previously seen on neighbouring South Uist in 2010. So, they really are living on the edge in more ways than one!

Selection of other interesting movements

Juv = juvenile, Im = Immature, Ad = adult, m = male, f =female, vv = ring(s) read in field, R = retrapped, X = dead

Great White Egret

CA83691 Chick 15/05/19 Besne, France
vv 23/09/19 Ythan Estuary, NE Scotland

The colour-rings on this bird helped to determine that there were at least 2 if not 3 of this still quite rare and infrequent visitor in the region during September/ October 2019 onwards.

Spoonbill

8063504 Chick 21/06/17 Den Oever, The Netherlands
vv 29/09/17 Le Lande, France
vv 21/02/18 Oud Kert Nadour, Morocco
vv 20/06/19 Kilnsea, E Yorkshire
vv 21/06/19 Saltholme, Cleveland
vv 22/06/19 Tyninghame Bay, E Lothian

A flock of five Spoonbills, found by Keith Gillon at Tyninghame inner bay on 22 June 2019, included the above colour-ringed bird. A photo by Jim Campbell enabled the combination to be deciphered. The birds were last seen on the 1 September.

Oystercatcher

FH38324	Ad	12/03/18 Sliddery, Arran
	R	09/05/18 Hofn, SE Iceland

Turnstone

XR13582	Juv	07/05/17 Ardivachar, Western Isles
	R	27/11/19 Gibene, Mauritania

Sanderling

BT73550	?	11/05/17 Ardivachar, Western Isles
	X	02/11/19 Point de Locquirec, France
8211519	Chick	01/08/09 Zackenberg, Greenland
	R	18/05/19 Sanday, Orkney

Tree Pipit

EK48307	Juv	04/08/18 Dalen, Luster, Norway
	R	09/05/19 N Ronaldsay, Orkney

Ring Ouzel

LJ21826	Chick	31/05/16 Glen Clunie, NE Scotland
	X	30/11/18 Ait Yadou, Morocco

The only other Glen Clunie Ring Ouzel recovery was 20 years previously, in 1998, also in November and also in Ait Yadou! This is in a valley quite rich in crops and trees with a river running through it. Ouzels are known to feed on Juniper close to water sources so this might explain the attraction to this area. Two GPS-tagged birds from Glen Clunie wintered around 150 km south-west of this valley.

Swallow

X070606	Chick	06/06/10 Strathclyde
	R	16/04/12 Verbania Alps, Italy
ALH9439	Juv	17/09/19 Balloch, Highland
	X	08/12/19 nr Cradock, Rep. of S Africa

A Swallow ringing recovery to South Africa is still a holy grail return for any ringer lucky enough to have received one. If you stop for a minute and think what it all means, that tiny bird, only a few months old, has flown unguided, 10,000 km south from Britain over the entire length of the African continent to spend the winter in a completely different environment.

It was once believed that Swallows in Britain hibernated under water at the bottom of ponds for the winter! This was probably fuelled by their habit of skimming low over the water to drink and gathering over water bodies to roost in reedbeds at dusk, vanishing off unseen on migration before first light the following morning. Swallow number B830 will always be remembered in the history of ringing as the first Swallow to banish that myth. Ringed as a chick in the nest on 6 May 1911 by John Masefield, a 61-year-old solicitor and wildlife enthusiast, in the porch of his house in Cheadle, Staffordshire. Bird ringing had only begun two years previously and John was using rings provided by Harry Witherby, one of the founders of organised ringing in Britain.

Harry received a letter, dated 27 December 1912, from a Mr C.H. Ruddock, proprietor of the Grand Hotel, Utrecht, Natal, South Africa. He wrote: "Dear Sir, On December 23, a swallow was caught in the farmhouse of the farm Roodeyand, 18 miles from this town, with a metal label round its leg, with the words Witherby, High Holborn, London, and on the other side B830. The farmer, Mr J Mayer, took the label off and has it in his possession. As I am interested in birds of any sort and the migration of same, I shall be glad to know if you received this letter safely."

And there it was, the first evidence that Swallows breeding in the British Isles migrated to South Africa for the winter.

I found it quite interesting that the bird appeared to be frequenting a farm during the winter as well.

And of course there's the return journey for many, not always on a direct route either, as demonstrated by the Strathclyde chick retrapped in Italy on spring migration.

And to round it all off the oldest BTO ringed Swallow on record is just over 11 years old, meaning this bird has done 11 round trips to Africa and back, doing a very approximate 110,000 km flying time, on migration alone!

Marsh Warbler

CY87658	Imm	05/08/16 Flommen, Falsterbo, Sweden
	R	07/06/19 N Ronaldsay, Orkney

Brambling

S724140	Imm	11/04/19 Peebles, Borders
	R	22/11/19 nr Blekinge, Sweden
AKE2583	Imf	29/12/18 Dunecht, NE Scotland
	R	28/04/19 Ottsjo, Undersaker, Sweden
S708258	Imm	19/10/17 Nigg Bay, NE Scotland
	R	11/05/19 Drevdalen, Trysil, Norway
EC05330	Imm	02/09/18 Tindvedkrattet, Norway
	R	08/04/19 Banchory, NE Scotland
EM59666	Imf	10/10/18 Bomyra, Rogaland, Norway
	R	03/02/19 Dunecht, NE Scotland
EL68538	Imm	08/10/18 Kvassas, Rogaland, Norway
	R	19/01/19 Comers, NE Scotland (also reported 2 and 3/2/19)

Goldcrest

KPT380	Adf	02/10/19 Nairn, Highland
	R	22/11/19 Woolston Eyes, Warrington
KLN970	Adf	14/09/19 Pitfichie Hill, NE Scotland
	R	16/11/19 Eastleigh, Hampshire

Plate 43. Lesser Scaup paired with Tufted Duck, Millar's Moss, Borders, 27 May 2019. © *Mark Wilkinson*

Attempted pairing of Lesser Scaup and Tufted Duck in Borders

M.A. WILKINSON

On 18 May 2019, Ciaran Hatsell, Andy Denton and Will Scott made the exciting discovery of a male Lesser Scaup at Millar's Moss, which is a small reservoir just inland of St Abb's Head. Subject to acceptance by the Scottish Birds Records Committee (SBRC), this will constitute the first record for Borders. Already being down the coast looking for migrants, I made a short detour and saw the bird the same day in dull, flat light, and managed to take some poor record shots. I decided that I would return in better light if the chance arose, as it seemed a good opportunity to obtain reasonable shots of this species, Millar's Moss being a relatively small water body, where close range views of the ducks are almost guaranteed.

My first chance to return did not come until 27 May, which after a cool, hazy morning became a sunny and pleasant afternoon. I arrived at Millar's Moss just after lunchtime, and found the Lesser Scaup still present. Over the following two hours, I watched the bird almost continuously. It quickly became apparent that it had singled out one particular female Tufted Duck for special attention, barely leaving its side. It generally stayed within one metre of the female, and aggressively drove off any unpaired male Tufted Ducks, of which several were present. Mostly, the female Tufted Duck did not seem to share the Lesser Scaup's enthusiasm, and frequently tried to escape his attentions, but at other times seemed to accept the situation, with the two birds behaving as a normal 'pair' (Plate 43).

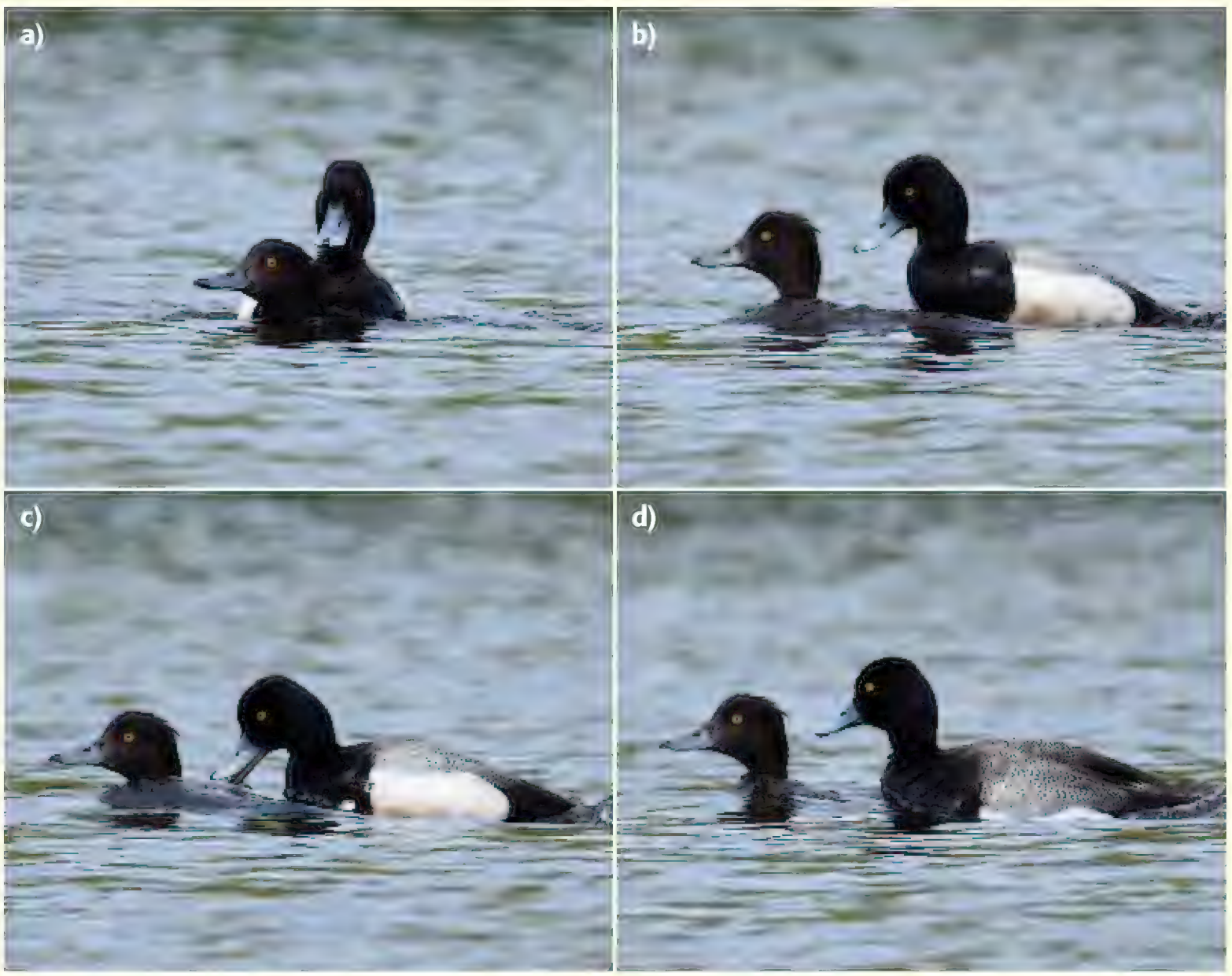
After about an hour of observation, attempted copulation was seen, but this proved unsuccessful, mainly due to the female Tufted Duck refusing to settle (Plates 44 a–d). The Lesser Scaup remained at Millar's Moss (or the nearby Mire Loch) until at least 10 July, during which time it was undergoing its annual moult. Despite the propensity for *Aythya* ducks to readily hybridize, any breeding attempt appeared to be unsuccessful, although it will be interesting to see if the bird returns in 2020.

Lesser Scaup is a scarce but increasing visitor to Scotland, with 74 records to the end of 2017, although over-summering is rare. For example, only five birds (curiously, all adult males) have been seen during the month of June: single day birds on 23 June 2001 at St John's Pool, Caithness, on 19 June 2004 at Gart Gravel Pits, Upper Forth and on 2 June 2007 at Hogganfield Loch, Clyde; and two birds which lingered from May into June; from 12 May to 24 June 2009 at Loch of Benston, Shetland, and from 10 May to 11 June 2013 at St John's Loch, Caithness (all SBRC data).

With reference to previous records of Lesser Scaup in the UK, Mark Holling (Secretary, Rare Breeding Birds Panel) has commented as follows "the RBBP archive contains only two previous records of Lesser Scaups, both referring to a single male cavorting with female Tufted Ducks. The first was the aforementioned Caithness bird in 2013. The other refers to a male which wintered for seven consecutive years in Cardiff Bay, East Glamorgan. In 2015, it remained until 29 June during which time it was seen displaying to a female Tufted Duck. To date, there have been no confirmed breeding records of Lesser Scaup in the UK".

Mark Wilkinson, 108/10 Comiston Road, Edinburgh EH10 5QL.
Email: mark.a.wilkinson@blueyonder.co.uk

Plate 44 a–d. All Millar's Moss, Borders, 27 May 2019. © *Mark Wilkinson.* **a)** Lesser Scaup attempting copulation with Tufted Duck. From an identification point of view, the marked difference in bill pattern is shown well in this photo; the small, restricted black nail of the Lesser Scaup, compared to the extensive 'dipped in ink' bill pattern of the Tufted Duck. **b)** Lesser Scaup attempting copulation with Tufted Duck. **c)** Lesser Scaup attempting copulation with female Tufted Duck. **d)** Lesser Scaup attempting copulation with female Tufted Duck. Just after this shot was taken, the Tufted Duck swam off strongly, still pursued by the Lesser Scaup.



Observations on nesting Honey-buzzards in central Scotland during 2019

C.J. MCINERNY, K.D. SHAW, G. MASON, A. LITTLE & K. LITTLE

We have been studying Honey-buzzards in central Scotland for a number of years. These studies have revealed two separate breeding populations, one in east central Scotland and the other in west central Scotland, with other pairs thinly distributed throughout the region (Shaw *et al.* 2017, McInerny *et al.* 2018a, McInerny *et al.* 2018b, McInerny & Shaw 2019).

During the 2019 breeding season there were fewer pairs and non-breeders than in previous years. However, a second nest was located in east central Scotland in addition to the first found in 2018 (McInerny *et al.* 2018b). In collaboration with Forestry and Land Scotland a camera trap was placed overlooking the nest on 23 July at the same time that two nestlings were ringed. Nest monitoring, ringing and photography were completed with a Schedule 1 licence issued by Scottish Natural Heritage (SNH). The camera subsequently recorded about 7,000 photographs over the next week: here we show ten images, which illustrate some interesting aspects of Honey-buzzard nest activity.

Plate 45. Honey-buzzards, two nestlings, central Scotland, 23 July 2019. © *G. Mason, C. French & M. Rafferty*. These nestlings are likely to be about 2–3 weeks old, after hatching in early July. One is noticeably older than the other.

Plate 46. Honey-buzzards, female with nestlings, July 2019. © *G. Mason, C. French & M. Rafferty*. The female *Whiteshaft* (McInerny *et al.* 2018a) was observed on the nest for most of the period while the camera trap was active. On leaving the nest for food items or nesting material, she would typically be absent for 20–40 minutes.

Plate 47. Honey-buzzards, female and arriving male with nestlings, July 2019. © *G. Mason, C. French & M. Rafferty*. For most of the period the male *Turnberry* (McInerny *et al.* 2018b) was absent from the nest, and the two parents were both present together on just a few occasions.

Plate 48. Honey-buzzards, female and male with nestlings, July 2019. © *G. Mason, C. French & M. Rafferty*. On the few occasions that both parents were present on the nest, the male would only remain for short periods of up to a few minutes while a food item was delivered.

Plate 49. Honey-buzzards, female with nestlings, July 2019. © *G. Mason, C. French & M. Rafferty*. During the period almost all the food items delivered to the nestlings were wasp (Hymenoptera) combs containing grubs; the male and female brought at least 20 combs through the week. Two unidentified bird fledglings were also carried to the nest.

Plate 50. Honey-buzzards, female with nestlings, July 2019. © *G. Mason, C. French & M. Rafferty*. Here the female *Whiteshaft* has presented the nestlings with another piece of wasp comb.

Plate 51. Honey-buzzards, female with nestlings, July 2019. © *G. Mason, C. French & M. Rafferty*. A distinctive feature of Honey-buzzard nests is the large amount of fresh branches from both coniferous and deciduous trees deposited on them throughout the nesting period (Appleby 2012, Harwood & Richman 2016). Here the female has brought a branch and is about to place it on the nest.

Plate 52. Honey-buzzards, male with nestlings, July 2019. © *G. Mason, C. French & M. Rafferty*. The male *Turnberry* was observed visiting the nest 4–6 times each day, but just a few times when the female was absent. When she was absent he would remain on the nest for up to 20 minutes.

Plate 53. Honey-buzzards, male with nestlings, July 2019. © *G. Mason, C. French & M. Rafferty*.

Plate 54. Honey-buzzards, two nestlings, 31 July 2019. © *G. Mason, C. French & M. Rafferty*. By the end of the week both nestlings were more advanced, with the older of the two having developed dark upperpart feathers.

Acknowledgements

We thank C. French (Forestry and Land Scotland) and M. Rafferty (Central Scotland Raptor Study Group) for assistance in erecting the camera trap. To support the 2019 work CJMcI received a grant from the Glasgow Natural History Society, Professor Blodwen Lloyd Binns Bequest; and KDS received a grant from the SOC.

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Terek Sandpipers in North-east Scotland and Highland, June 2019

D. PICKETT, D. SHORT & D. MACASKILL

Forvie Sands NNR, 13 June 2019 - the second record for North-east Scotland

David Pickett – It had been less than a month since I had moved up to work at Forvie National Nature Reserve on a temporary transfer as the Reserve Manager and I had been thoroughly enjoying immersing myself in new habitats and getting to know new species. It is a just fabulous place to see birds and I had already been lucky enough to have found a Quail, Marsh Harrier and a singing male Bluethroat in the preceding few weeks, so I was thinking that my luck was probably all used up.

Thursday 13 June was a filthy day, wild, wet and windy. I had kept dry in the morning with a primary school in the classroom but it was my turn to do the daily check of the electric fence that goes around Forvie's special tern colony. Each day it needs to be looked over to make sure it is functioning and offering protection to the 3,000 pairs of terns, 2,000 pairs of Black-headed Gulls and other assorted Oystercatchers, Ringed Plovers and Eiders nesting inside it. So, I couldn't put off going out and I headed out of our office at the Forvie Centre, Little Collieston about 13:30 hrs and drove down to the Waterside car park to unlock the gate and continue down along the Ythan to the Fisherman's car park.

Plate 55. Terek Sandpiper, with Dunlin, Forvie Sands NNR, North-east Scotland, 13 June 2019. © *David Pickett*

There was a strong easterly wind with steady rain in the estuary, so I waterproofed up before setting off. I had only gone 50 m down the track when I noticed a group of waders scattered across the mudflats about 30 m out. I scanned across the group and marked them down as Dunlins - mostly in breeding plumage with a black patch on the belly. But one wader in the midst of them stood out. First impressions were that it was bigger, plumper and had a much whiter belly and was very different from the Dunlins around it. A further scan showed to it to have plainer, paler back compared to the Dunlins, a clear broad eye stripe and a very noticeably different bill that was fine, seemed long and slightly upturned. It was probing into the mud and the length and shape of the bill meant it had to hold its neck stretched up a bit to enable the bill to go straight in, in the way of a godwit. Straight off I didn't know what it was. Not being fluent in rare waders I couldn't put a name to it though the up curved bill did ring a slight bell that the first thing I should look at when I got back was a Terek Sandpiper. But I had a job to do, so I grabbed my camera and snapped a couple of photos of this wader. I only managed two shots before the Dunlin started to take off and the bird went with them. The whole group headed up the Ythan towards the Waterside car park and I lost them in the wind and rain. I then walked the fence line more worried about what this awful weather would be doing to the poor terns than funny waders.

Finally, about 15:15 hrs I got back to the office and said to Daryl that I had seen a funny wader. I had no idea how the pictures had come

out but I put the SD card into the laptop and opened them up. Being already used to me coming into the office having seen something funny Daryl was very polite until he had a closer look at the photos and then went a bit quiet. "Well it looks like a Terek" he said. And then things started to speed up. A *Collins Bird Guide* was grabbed and the features seen in the photo all helped to confirm that it looked like a Terek Sandpiper. Our next step was to get it confirmed so I reduced the photos and as neither of us were on the ABZ facebook page, we emailed photos to Simon Ritchie down at St Cyrus NNR who put them up and asked opinions. Daryl then started to put the news out and we found ourselves on mobile and landlines telling people or fielding their return calls. However, by then the bird hadn't been seen for a couple of hours and the estuary can be a big place. Unfortunately, I was supposed to be going on holiday early the next day so I packed up and headed south to Stirling and spent the next three hours desperately hoping that Daryl refound the bird, otherwise it would be a very long stay at Forvie with him not speaking to me.

Daryl Short – Dave came back to the office soaked through, reporting an odd wader among the Dunlin, with a "long straight beak, possibly slightly upturned". I drily remarked that it must have been a Terek Sandpiper then. When he put the first photo up on the office computer, I just about fell off my seat.

We both then had a total meltdown, trying to find reasons why it wasn't one, despite the complete lack of any credible alternatives. Luckily, Simon Ritchie at St Cyrus was able to offer the (obvious) confirmation via the ABZ birding community. The twitch was on!

Unfortunately, the bird had other ideas. Pete Shepherd was one of the first on-scene, and relocated the bird on the estuary at Inches Point. It then proceeded to disappear into a gully and give everyone the slip. At this point Dave and Pete were the only people to have seen it. My wife Catriona and I decided to give up at about 18:30 hrs, having stood in apocalyptic rain and unbelievably low temperatures for two hours. This would be a painful dip on the local patch.

On our way home to Collieston we stopped by the roadside just north of Newburgh to have a quick look through the Dunlin there. My phone rang; it was Phil Crockett, and just as I was telling him how rubbish it all was, BOOM! There it was among the Dunlin. Despite numb fingers, adrenaline shakes and utter incompetence with smartphones, I managed to ring Simon who was still with the rest of the soggy crowd at Inches. Everybody hurriedly decamped to come and join us and thankfully this time the bird stuck around for everyone to enjoy some excellent views. The relief in the crowd was tangible! A really cracking bird, and a great find by Dave who has birded me to a pulp on Forvie this year.

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Dornoch, 28–30 June 2019 - the second record for Highland

On the morning of 28 June 2019 I went for a walk out to Dornoch Point. It had been raining overnight and the morning was very misty. As I reached the airfield car park the mist was beginning to burn off and the sun was beginning to shine. It was a few days since I had been to the point. A pair of Little Terns had been displaying and nest scraping during my last visit so I went to check on the birds' progress. I walked my usual route, along the edge of the saltings to the west side of the point then back up along the beach. This route, especially in the morning, ensures the sun is behind me.

It was a quiet morning for birds, a Whimbrel being the highlight so far. Then, I saw a Little Tern sitting on the nest, and its partner in attendance nearby at the waters edge. I gave the terns a wide berth and walked up through the Marram Grass. Once clear of the Little Terns, I returned to the beach heading back towards the airfield. The tide was just going out and the only bird I could see on the beach ahead of me was a distant wader which I thought looked like a Greenshank, c. 100 m away. That in itself would be uncommon on the beach, but when I got the

Plate 56. Terek Sandpiper, Dornoch, Highland, 28 June 2019. © *Peter Stronach*

bird in my 'scope I quickly realised it was a Terek Sandpiper - a patch tick!

The Terek Sandpiper was feeding on piles of freshly exposed seaweed as the tide retreated. Its plumage was not dissimilar to a Greenshank. It was a slightly smaller and more compact bird, with a more horizontal shape, a steep forehead and long upcurved bill. It had grey/brown upperparts, with a long black carpal streak. The legs were yellowish/green. The bird then flew south about 50 m, and as it flew, it flicked its wings in Common Sandpiper-like fashion, revealing paler white secondary wing bars and a grey rump. In flight it called a fluty trisyllabic call. I stayed with the bird for around 15 minutes. I checked the time and realised I had an appointment in 20 minutes so reluctantly had to leave. I put the sighting on the local WhatsApp group and hoped that the bird would stick around. It was two days later before I had the chance to spend some more time with the Terek Sandpiper, which showed well for local and visiting birders. Two other birders and myself searched on 1 July but unfortunately could not relocate it.

It was during my last visit to see my sister in Australia, back in 2011, when I saw my first Terek Sandpiper in the tidal mudflats and mangroves of the Hunter Wetlands in New South Wales. It had a superb supporting cast of Red-necked Stints, Sharp-tailed Sandpipers, Great Knots and many more. As good as that was, finding one unexpectedly on my local patch was very thrilling!

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Terek Sandpiper status in Scotland

Terek Sandpiper is a Palearctic species which breeds in marshy grassland near the edges of rivers and lakes, streams and river deltas in southern Finland and from western Russia, the Ukraine, eastwards to Siberia. It winters in coastal areas in sub-tropical and tropical mudflats and estuaries from East Africa, Arabia, India and south east Asia to Australia.

There have been 89 accepted records of Terek Sandpiper in Britain to the end of 2018, with 12 of these in Scotland. The Scottish records show a strong bias to northern Scotland, with four on Shetland (1975, 1991, 1995, 2005), one on Fair Isle (2007), one on Orkney (1987) plus records from the north coast of Scotland - Sandside Bay, Reay, Caithness on 5–12 June 1977 and Kyle of Tongue, Highland on 1 July 2015. Elsewhere there are singles from Findhorn Bay, Moray & Nairn on 29–31 October 1998; Loch of Strathbeg RSPB Reserve, NE Scotland on 9 May 1997 and Dumbarton/Clyde Estuary, Clyde on 22–30 September 1996 and at Ardmore Point, Clyde on 31 October 1998.

As with records elsewhere in Britain, the find dates group into a larger 'summer' peak between 9 May and 1 July and a smaller 'autumn' peak between 22 September and 31 October. The longest stay for a bird in Scotland is that of the Clyde 1996 bird which was present for nine days. Eight birds in England have lingered longer with the maximum stay being that of one which overwintered twice at the Blyth Estuary, Northumberland from 1989 into 1990 and 1990 into 1991, amounting to around 360 days of observation. The average number of sightings a year in Britain is about two, with four noted in 2018, and five in 1998 and 2014. In Scotland the only year of multiple occurrence is 1998.

Plate 57. White-crowned Sparrow, Islay, Argyll, 12 June 2019. © *Bonnie Wood*

White-crowned Sparrow, The Oa, Islay, 12 June 2019 – the first record for Argyll

B. WOOD

My husband had headed out to do an early morning breeding bird survey on the Oa RSPB reserve on Islay that he manages. I was downstairs in the kitchen by 07:30 hrs looking out over the Oa - across lochs and moors to the American Monument on the cliff tops with the Atlantic Ocean beyond. Our daily bird viewings include Choughs, Hen Harriers and eagles. This morning, however, an altogether different bird suddenly came in to land on the picnic table outside the door. It came in at speed and seeing me just on the other side of the glass, took a quick backward swerve. The bright white head stood out so strongly, and pretty much immediately I thought White-crowned Sparrow! Eleven years ago, when we lived in Norfolk, we popped along to Cley to see the White-crowned Sparrow that hung around for some time near the church. I have a clear recollection of that bird, and this one looked pretty similar. Just in case, I ran through what else it could possibly be - a Reed Bunting, a weird leucistic Twite, a sparrow with a white head?

I rang my husband but it turns out he was in the river valley, one of the spots on the reserve with intermittent signal ...straight to answerphone. I sent a quick text and WhatsApp message. By now the bird was happily pottering about on our drive right outside the kitchen window. I started to panic... Dave isn't here, he won't believe me, I need to get a photo. The 'good' camera was on the table, but the battery was dead - as were the next two batteries I tried. Finally, I found the charger and plugged in a battery.

At this point, neither my six-year-old daughter nor I had even picked up the binoculars laying on the table, the bird was so close - 3 m outside the window. Still in a flap, thinking he would never believe me, I set to snapping away with my phone. Now about 5 m away on the other side of the drive, it was a mere speck. I finally thought to pick up the binoculars and noticed it had a pink bill, but it was off around the corner, so I raced off to get a better picture. I moved into the boot room. Screwing myself

around, snapping away, the bird came closer. I changed windows, and it came even closer. Thank goodness, I thought, as it hopped up onto a pile of larch we have stacked outside. Snap, snap, snap as it walked along the length of wood and flew off.

Happy that I'd got evidence, I set to again, ringing and ringing, messaging the farm manager to track down my husband on the radio, no one could get him.

I then suddenly realised I hadn't even looked in the book yet, so got the *Collins Field Guide* and the *Sibley* off the shelf (this makes me sound like I know what I'm talking about... I really don't!). We looked through the *Collins Field Guide* first, "right in the back Mummy, that's ultra rare" - someone knows her stuff. We studied the picture of the White-crowned Sparrow and I was asked to explain what a vagrant was. Pleased that I got it right, there was no time to keep looking for the bird. The school taxi would be here soon and we were still in our pyjamas, ringing every few minutes with the phone still going to answerphone. I finally heard from my husband at 08:36 hrs, a whole hour (and what seems like much more) since we spotted it. I raced to pick him up from the edge of the reserve, we came home and searched, but found nothing. We scattered some bird seed on the drive in the hope it might have come back.

It was a morning of highs and lows, massive excitement about finding it and identifying it but so sad (I have to say that - truly I'm slightly amused) that my husband missed it. After trawling around the farmyards and gardens in and around the reserve, he finally gave up on it late afternoon. Looking through the book we noted that the pink bill likely means it is the more common eastern sub-species *Zonotrichia leucophrys leucophrys*.

"High fives to us Mum" said Evie as we discussed seeing this sixth record for Scotland when she got home and worked on her personal topic for school, the Echo Parakeet and Mauritius Kestrel... a birder in the making, I think.

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Plate 58. White-crowned Sparrow, Islay, Argyll, 12 June 2019. © *Bonnie Wood*

White-crowned Sparrow status in Scotland

This Nearctic species breeds from Alaska eastwards across Canada south of the Arctic Circle to the southern edge of Hudson Bay to northern Quebec and Newfoundland and south to western Alberta, northern California and western Montana, Utah and Colorado to Pennsylvania. It is almost entirely migratory, with the birds wintering from coastal British Columbia south to Baja California and from the southern Rockies and Idaho east to the southern tip of Lake Michigan and New Jersey and south to Florida and NW Mexico.

There have been nine records in Britain to the end of 2018, with five of these in Scotland:

1977 Fair Isle, one, 15–16 May
2008 Fife, one, St Michael's, near Leuchars, 17–18 May
2016 Outer Hebrides, first-summer male, Zonotrichia leucophrys leucophrys, *Port Nis, Lewis, 3–4 May and presumed same South Dell, Ness, Lewis, 31 May*
2017 Shetland, first-winter, Ham, Foula, 8–11 October
2018 Shetland, first-winter, Ristie, Foula, 30 September to 14 October

*The Scottish records show a bias to the north and west, as is seen with its close cousin White-throated Sparrow, which shows a strong spring bias to occurrences. Elsewhere in Britain there have been White-crowned Sparrow records in Yorkshire (May 1977), Lancashire (October 1995), Norfolk (January to March 2008) and Cheshire (*Z. l. gambelii, *April 2016), with little to indicate a pattern to the records. There has been one record in Ireland: at Dursey Sound, Co. Cork on 20–27 May 2003, with an additional 'at sea' record of one on board the SS Nova Scotia when in Sea Area Shannon and within sight of Ireland in early June 1948.*

Blue-cheeked Bee-eaters in Highland and Outer Hebrides, June and July 2019

S. EDWARDS & A. BATTY

Achnahaird, Highland, 23 June 2019 - the second Scottish record

On a warm, sunny, Sunday afternoon in late June 2019, a short drive around the Coigach Peninsula, Highland found my wife and I entering the small village of Achnahaird. There I noticed a small group of birds perched on wires beside a house and as we approached them in the car they took off from the wires - mainly Starlings but one bird did a spectacular backflip off the wires and I said to my wife - a bee-eater! It was definitely a bee-eater - slim, agile and long tail streamers quite obvious from about 30 m. Needless to say, the car was pulled up and the binoculars grabbed.

Plate 59. Blue-cheeked Bee-eater with Meadow Pipit above, Achnahaird, Highland, June 2019. © *Stuart Edwards*

It had flown across the road onto electric wires about 50 m away and I managed to get quite a good look at it and it had a green upper and lower body, a dark eyestripe and a slim downcurved beak characteristic of the family. It had a paler area on its chin and to a lesser extent above the beak. The tail streamers were quite clear as it sat at about 45° on the wires. I am not familiar with all the species in the group, although I have encountered them in Australia, Malaysia and South Africa and suspected initially it was a European Bee-eater, but it looked just too green.

I managed to take a couple of record shots for ID through my binoculars with my phone - hence they are not great but you have to do what you can do. The bird sat for about 10 minutes getting a bit of hassle from a couple of Meadow Pipits until it took off and circled above me. As it flew it gave a wonderful view of the underside - green body and rusty, orange underwings which were quite striking. It flew up higher and then off to the west, unfortunately not to be relocated.

On return to the house, and a flick through my field guides, the details I had observed and the photos led me to Blue-cheeked Bee-eater, which was agreed by other birders more familiar with the species than me. What a find! It just shows - always take your binoculars with you, you just never know when that day will come! Also, these days of mobile phones with cameras in them can be a great help to the lone birder.

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Lewis, Outer Hebrides, 25 July 2019 - the third Scottish record

At 09:30 hrs on 25 July 2019, I was conducting my second 'vantage point' watch of the day recording the flights of Red-throated Divers breeding on lochans in the area surrounding Beinn Greidaig, five miles west of Stornoway. The weather was overcast, with a light southerly breeze and it was already warm (the temperature reached 25°C later that day).

At 09:45 hrs, I was aware of (and confused by) a regular whip-like call reminiscent of the first syllable of a Quail call or Spotted Crake. I quickly located the bird, which was flying in a southerly direction about 100 m distant and at a height of

about 10 m above ground. It was obviously a bee-eater from its sharply pointed wings, projecting, pointed, central tail feathers, the long decurved bill and characteristic flight pattern.

My first thought was "Excellent! A Bee-eater" thinking it must be a European Bee-eater. The more I watched it however, the more I realised this wasn't a European Bee-eater. First of all, the call wasn't the instantly recognisable liquid '*pruitt*' call I am familiar with from many encounters with that species in Southern Europe. Secondly, the build was wrong - this bird was much slimmer and sleeker than European Bee-eater and definitely not as robust and (relatively) compact as that species. Thirdly it had noticeably longer tail projections and finally the bill seemed longer.

All in all, it gave the impression of a 'stretched out' European Bee-eater. Unfortunately, as it was back-lit and silhouetted I couldn't get any indication of colouration, but the impression was of a uniformly dark bee-eater including when it very briefly flew in front of a nearby (200 m distant) wind turbine and was against the white background. There was absolutely no indication of the classic harlequin colouration of European Bee-eater, and that species yellow shoulders or throat. Unfortunately, the bird didn't linger for more than two minutes but continued its flight southwards and was quickly lost to view before it was possible to get a photograph.

In a state of disbelief, I then immediately searched www.xeno-canto.org on my phone for recordings of flight calls of individual Blue-cheeked Bee-eaters and satisfied myself that the call was exactly the same as that which I had just heard. However, given the brevity of the (mostly silhouetted) views I wasn't 100% happy. I therefore tried playing some more calls and scanning to see if the bird would come back into view but it was not to be. I prevaricated over releasing the news given the less than perfect views and I agonised for a while if I had adequately ruled out European Bee-eater. When I gained the confidence in my ID, and with the awareness that there would be other birders in the Outer Hebrides who would be very keen to find it, I decided to tweet the sighting on Twitter, alerting BirdGuides and Rare Bird Alert.

A little while later I checked the electric wires running alongside the A859 to the south of where I had last seen the bird, but was unable to find it again. Unfortunately, nobody else managed to relocate the bird either to my knowledge.

It seems possible that this was the same bird seen and photographed at Achnahaird on 23 June. I am lucky enough to have seen 20 of the 25 *Merops* species in the world (including Blue-cheeked) but this will rank as one of the most exciting finds and certainly the highlight of the many vantage point watches I have conducted.

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Blue-cheeked Bee-eater status in Scotland

This species has two subspecies, Merops persicus chrysocercus, *which breeds in central Algeria and Morocco south of the Atlas Mountains, and from Senegal and Gambia to Lake Chad, and* M. p. persicus, *which breeds in Egypt, and eastwards from southern Turkey to Kazakhstan and India. This population and that in NW Africa are entirely migratory and winter in West Africa south of the Sahel and from southern Sudan and East Africa through Central Africa south to northern Namibia, Botswana and South Africa.*

There have been 10 accepted records of Blue-cheeked Bee-eater in Britain to the end of 2018, with one of these in Scotland. The Scottish record was one in the Asta, Bressay, Tingwall and Lerwick area of Mainland Shetland from 20 June to 3 July 1997. The other nine records have all been single birds in south and eastern England: Scilly (13 July 1921, 22 June 1951), Cambridgeshire (17 September 1982), Devon (30 June to 2 July 1987), Cornwall (1 June 1989), Yorkshire (8–10 July 1989) also in Lincolnshire (12 July 1989), Kent (18 July 1989), Hampshire (21 June 2009) also in Devon (30 June 2009) and one in Kent (22 July 2009).

The British records have almost all occurred between 1 June and 22 July with a single 'autumn' record on 17 September, with birds typically only seen on their day of discovery, though the Shetland bird remained 14 days. The 2019 sightings sit closely with the summer peak of records.

Plate 60. Aquatic Warbler, Isle of May, 29 July 2019. © *Sam Langlois Lopez*

Aquatic Warbler, Isle of May, 27–29 July 2019 – the eighth record for the isle

D. THORNE

My wife, Margaret, and I make several visits to stay on the Isle of May each year to monitor the breeding success (or lack of) of the Manx Shearwater pair which nest on the island. We arrived mid-morning on 27 July across a flat sea to settle in to the Low Light, but were both in poor nick, she with a virus which left her in bed for most of the first three days and me needing to use two sticks to walk because of an old hip/sciatica type problem (we are both completely fine now).

We had retrieved our seabird monitoring kit to download data before the May Princess set down its complement of visitors at 15:00 hrs. With the departure of the visitors, at about 18:00 hrs, I went to reposition the kit and took a different route from the usual. As I headed along the High Road, a bird flushed from the west side out of the dockens to perch on one of them about 3–4 m away and below me so that I looked down on it. Admiring its creamy crown stripe and 'braces' I knew immediately that it was an Aquatic Warbler, so stood immobile for perhaps 20–30 seconds while we regarded each other before it flipped across to the area close to St Andrew's Well to dive straight down into the vegetation.

Because I had just popped along with the kit in the few minutes before dinner was due, I had no phone with me. So, to use that guid Scots word, I hurpled along with my sticks to return to the Low Light (Observatory) to make a brief

call to Bex Outram (SNH Assistant Warden) who came along with Sam Langlois Lopez soon after. I went back to meet them and they arrived there just as I did, though I did not spend long after orientating them and had to get back to sit down, and eat! Their initial check of the area drew a blank but managed good views a bit later. We were still having dinner when they came along with big smiles to let us know that they had seen and photographed the bird.

We had been on the island in 2001 until the day before the previous Aquatic Warbler was recorded on the May, so missed it and the rest of that wonderful August 'fall'. I did, however, have the pleasure of including the colour photos of the bird in the IoM Bird Observatory Annual Report for that year, for which I was editor at the time. I had never seen a live one before the 2019 bird, but had no question about its identity after having handled the 2001 images.

From the pictures, showing its clean breast and flanks, the bird was aged as a juvenile. It was seen by a number of interested parties who made the trip over in the next couple of days but it left during the night of 29th–30th, the first time that the haar had cleared to allow sight of the night sky since our arrival. It's splendid to relate that it became David Steel's (IoM SNH Warden) first lifer on the May and it certainly gave a lot of people a lot of pleasure.

By Tuesday Margaret and I had returned to something approaching normal health, and enjoyed some petrel-netting on the last couple of nights of our stay. There was little excitement about finding the bird because of our health issues. On any other visit when we have been fit as fleas the response would have been quite different.

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Plate 61. Aquatic Warbler, Isle of May, 29 July 2019. © *Sam Langlois Lopez*

Aquatic Warbler status in Scotland

This species mostly breeds in Poland and Belarus with smaller colonies in Hungary and from Lithuania into European Russia, formerly east as far as the Ob River. The entire population is migratory, with birds moving W or SW through northern Germany, The Netherlands, Belgium and NW France before turning south through SW France, Iberia and northern Morocco. The wintering grounds are poorly known but lie in sub-Saharan West Africa from Senegal to Mali and southernmost Burkina and adjacent Ghana. It has declined markedly, and is now the rarest breeding passerine in Europe.

There have been 1,399 birds recorded in Britain (13 in Ireland) to the end of 2017, with 56 in Scotland in the same period. This species was considered rare enough to be a BBRC-description species up to the end of 1982, but exceeded their thresholds and was removed from their list from 1983. As many as 62 birds were recorded in Britain in 1991 and the 1990s average was of 42 birds a year. The species then underwent a dramatic decline (to 2000s average of 13 per year, and just seven annually in 2010–15) and was reinstated as a BBRC-description species in 2016. BBRC stated at the time, "the majority (especially in recent years) have been discovered by ringers in Southern Britain. If limited to sight records the species would not be recorded annually in Britain".

In Scotland the decade totals have decreased from 14 in the 1960s, and 15 in the 1970s, to six in the 1980s and 1990s, seven in the 2000s, but just one between 2011 and 2018.

The vast majority of British records have been along the south coast of England, with rather fewer up the east coast to Borders, though several inland counties in England have hosted birds. Forty-eight of the 56 birds in Scotland have been found in the Northern Isles (85.7%), with nine on Shetland, 38 on Fair Isle, but just one on Orkney - North Ronaldsay on 21–22 September 1999. The only other records are seven on the Isle of May (12.5%) and one at St Abb's Head, Borders on 22–23 August 1977 - still the only record from the Scottish mainland. The distribution of Scottish records may be strongly influenced by the increased chance of finding birds at well-watched, less-vegetated sites rather than reflect the true geographic pattern of occurrence or the numbers actually displaced to Scottish shores. Certainly, the strong bias of English records to the Channel coast counties and numbers recorded is strongly correlated with the level of mist netting at regular coastal reed-bed ringing sites.

The first two Scottish records were from Fair Isle in October - one on 23rd in 1914 and next on 4th in 1935, since when all birds have been found between 1 August and 26 September. Four were in the first week of August, 16 in the second, 18 in the third and five in the last week of August. In September two were in the first week, four in the second, four in the third and one in the last week. These fit within the spread of find dates for birds in England. This pattern of a large peak in mid-August and a small one in mid-September is similar to that seen in England, though the August peak is more pronounced. This may reflect a later migration by second-broods of birds - a feature also noted in Central Europe. There are several October records in England and two in November, plus two in spring: singles at Cley, Norfolk on 12 May 1938 and at Blagdon, Somerset on 13 May 1963.

The skulking nature of this species means it is seldom seen beyond the day of discovery (61% of Scottish records are one-day birds and 20% only linger two days), though one on Fair Isle in 1958 was present for 10 days, singles on Fair Isle in 1974 and 1997 for nine days, and one on Foula, Shetland in 1987 for eight days. The most seen in a year was six in 1969, and three have been present at the same time on Fair Isle on 14 August 1972 and 18 August 1979.

Barolo Shearwater, 18 August 2019 – the second record for Dumfries and Galloway

B.D. HENDERSON

At the north-western tip of the hammerhead-peninsula known as The Rhins of Galloway, on the western-most coast of Dumfries and Galloway, nestles Corsewall Point - a rocky promontory overlooking the North Channel, the Straits of Moyle and the Firth of Clyde. Corsewall Point has long been a favourite seawatching location of mine in Dumfries and Galloway over the years. It affords excellent land-based seawatching opportunities throughout the year and comes into a class of its own during the late-summer and autumnal seabird passage periods. Prior to November 2014, regular visits were made on a near fortnightly basis during the mid-to-late summer months and more often during the autumnal months, which frequently resulted in overnight stays, especially during the peak seabird passage periods. However, such visitations were timely and costly resulting in a 200 mile round trip. It was during late November 2014 that I relocated to Stranraer, which is situated on the south-western shores of Loch Ryan. I immediately assigned myself to undertake a concerted and detailed study of the seabird movements past the point, targeting in particular, all species of petrels, skuas, vagrant shearwaters, all Puffins and recording everything else avian in the process.

Plate 62. Barolo Shearwater (flying left), Corsewall Point, Dumfries & Galloway, 18 August 2019. *© Brian Henderson*

Although seawatching from the point can be fraught and exacting at times, it is almost always pleasingly rewarding in some manner or form, and on the whole seawatches are generally productive providing sought after target-species are looked for within their respective seasonal passage periods coupled with favourable wind strengths and directions. Early August started off with moderately light south-westerly-orientated winds that then moved, unfavourably with regards to the time of year, to a southeasterly or a north-westerly and west-north-westerly-orientated direction. However, mid-month, following a sudden directional change, the winds upped their strength and blew again from a south-south-westerly direction from 16 August onwards.

Sunday 18 August 2019 started off a typical day; I drove to the point, arriving at around 06:20 hrs. I parked the car up as usual at Dunskirloch, which sits to the east of Corsewall lighthouse and west of Well Isle, at an elevation of 18 m above sea level, facing towards Milleur Point. Such positioning of the car allowed me to view out of the open passenger door window looking out towards the Kintyre peninsula. After setting up my 'scope in the passenger seat area of the car, I proceeded to seawatch at 06:30 hrs. Straight away, there was a good movement of commoner seabirds passing south-west past the point. At 07:47 hrs, I recorded my first Balearic Shearwater of the day and by 08:38 hrs I had recorded, amongst other species, 14 Storm Petrels moving past the point.

At 10:06 hrs I then spotted a bird hurriedly moving in a south-south-westerly direction and I immediately realised that it was something different to the norm so I dropped my four-clicker counter that I was using to count the passing seabirds, and upped the magnification on

the 'scope from x30 to x50 as it immediately became obvious that its mode of flight, and flight action, warranted closer scrutiny. Its flight was the obvious indefinable feature that initially stood out. As the bird flew closer, I dropped the magnification back to x30 (for better clarity) and started taking notes. I jotted down its flight action, noted its size, its compactness/stockiness, its head shape/size profile and head and body proportions and plumage characteristics, all at the same time by comparing it to the nearby Manx Shearwaters that were passing close by. At this point, the bird turned slightly and flew in a more south-westerly direction giving much better lateral views. Straight away I realised that I was looking at a Barolo Shearwater - the aforementioned features that I had noted a short time earlier now became more characteristically evident and allowed for me to make more detailed notes including proportionate body dimensions together with clearer views of its head and underwing markings. In the ensuing time that I observed the bird, I made more detailed notes of the number and sequence of wing flaps, timed its short glides and compared these to those of the nearby Manx Shearwaters. I realised that by this time I needed to get images of the bird! I hand-held my Nikon Coolpix S9600 compact camera onto the eyepiece of the 'scope but only managed two actuations when the bird was suddenly lost to view - phew! However, my elation was short-lived, playback showed the first image to be blurred and inconclusive but the second image was a 'doable' record shot, certainly not the crippling shot that I had wished for, but it was what it was.

Description

Overall the bird was primarily dark above and white below, was noticeably smaller, compact and stockier-looking than the nearby Manx Shearwaters. Its bill was dark and slender. The head, especially, the forehead, crown and upper napes were a nice rounded shape and were dark. In proportion to body size, the head looked out-of-place-comparatively-small. The white cheeks extended upwards towards the ear coverts and accentuated the dark neck/hindneck sides. The dark isolated eye was not always evident. Upperparts: mantle, back, wings, and uppertail, were all dark. The upperwings showed very faint whitish looking panels, though these were interchangeable as the bird flighted past. Underparts: including chin, throat, breast, belly, flanks and undertail coverts were all white, as were the underwings with the exception of dark narrow borders to the trailing edges and wing tips. The wings were obvious-looking shorter, broader and more rounded. Overall it was less attenuated than the nearby Manx Shearwaters, the tail was noticeably more rounded and broader, the outer tail edges were dark but the rest of the undertail was white. An obvious white notch between the trailing edges of the wings and the tail below the rump was evident. Its flight was quicker, faster and 'flappier' and its wing-beats were quicker compared to that of the nearby Manx Shearwaters i.e. around 10–12+ times between glides. The downward wing flaps were evidently deeper, the glides were very short i.e. only a second or two compared to 3–5+ seconds for that of the Manx Shearwaters. The bird stayed really close to and aligned itself low over the water and did not bank or shear.

After a huge sigh of relief, I decided to put the news out, but as luck had it there was no signal on my mobile phone, I then decided to carry on seawatching regardless. Eventually, after a 12-hour seawatch, during which time I added another Balearic Shearwater, seven more Storm Petrels, two Great Skuas and variable totals of commoner species to the day's tally, I called it a day and headed home and finally managed to get the belated news out. On the whole, it was a combination of the smaller size, distinctive mode of flight/flight action and white facial features that initially caught my attention that made this bird stand out and really set it apart. I ruled out it being an aberrant facial-plumaged Manx Shearwater due to its much more obvious smaller size and critically its distinctive and completely different mode of flight and flight action. So, all in all, a good seawatch made all the more memorable by the Barolo Shearwater gracing the notebook. The record is currently pending with BBRC, and if accepted it will be the second Barolo Shearwater record for Dumfries and Galloway following the first, which incidentally was also seen off Corsewall Point, on 14 September 1985.

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Plate 63. Cliff Swallow, Milovaig, Skye, Highland, August 2109. © *Sam Langlois Lopez*

Cliff Swallow, Isle of Skye, Highland, 27 August 2019 – first Scottish record

S. LANGLOIS LOPEZ

I've had the privilege of staying on the Isle of May for the past two summers as part of my work on seabirds and this opened my appetite for rare passerines. June and July are not the best months to be looking for rare birds, but you can get the occasional wave of migrants in late July, and that is what happened on my last week on the island. It all started with the Aquatic Warbler found by David Thorne, which was enjoyed by all of us on the island for three days. This was followed by a Common Rosefinch, Wood Warbler and a Melodious Warbler among a cast of other more usual migrants - not bad for the last week of July! After such a roll, you always feel motivated to go out in the field and attempt to find other uncommon visitors. However, I did not expect to find one on the west coast.

My partner Ella and I took a well-deserved holiday and decided to explore the west coast of Scotland, a destination we barely knew. The weather forecast did not look great with predicted heavy rain and winds, but we were hoping things would improve as the days went by (spoiler alert: they did not). We would of course keep an eye out for birds and other wildlife, but our plan was to have a chilled trip, just enjoying some of the best landscapes Scotland has to offer.

We made Skye our first destination. On our first day we explored some of the classic spots around the southwest of the island, which were stunning. The weather was already dreadful by then and, since we were camping, the constant rain was making things quite uncomfortable for us. It really is not fun having to build your tent, already damp from the previous night, in the pouring rain. We were running low on motivation to go out and explore knowing we would end up soaked to our bones, but we tried anyway.

The north-west of Skye was our next destination, where we stayed at the Dunvegan campsite for a couple of nights. We still had not seen an eagle or a diver, and we were also after good views of Otters. Milovaig harbour was apparently a good spot for all of these, so we went there on the rainy evening of 27 August. There were quite a few Wheatears about, together with Meadow and Rock Pipits. We explored the shore east and west of the pier but found no sign of Otters. Suddenly, a large shape appeared in the middle of the harbour - a summer-plumaged Great Northern Diver! This already made the visit worthwhile. We enjoyed the diver for a few minutes before returning to our search for Otters along the shoreline. Not long after, the rain got stronger and we decided to call it quits. On our way back to the car, I decided to have one last look at the diver from the pier as it is not something I get to see every day. Whilst I was enjoying it, Ella asked whether the bird she was looking at could be a Sand Martin flying around. "It will probably be a young Swallow or House Martin" I answered whilst still looking at the diver. "It really doesn't look like either" she responded. I had a quick look at the hirundine and instantly froze when I saw a rusty coloured rump.

"Surely not" I thought to myself. I kept following the bird flying back and forth, sometimes too close to follow with binoculars. The square tail, the compact body, the blue cap, plus the orange forehead patch. "This cannot be happening". I tried really hard to make it into something more likely. A House Martin x Swallow hybrid perhaps? No, it was pretty obvious - we were looking at the first American Cliff Swallow for Scotland. That same morning, I had seen pictures of the recent bird on Iceland so I was able to instantly ID what I was looking at.

I was shaking, swearing and unable to put two words together (it was at that point Ella probably questioned her choice of partner). I ran to the car to get my camera whilst Ella stayed on the bird. Luckily the bird performed incredibly well and was flying around our heads, allowing me to get much needed photos. We sheltered from the rain in the car, where we were able to put the news out through 'Whatsapp' and Twitter. Luckily, local birder, Andy Stables, lived close by and was able to join us and enjoy the bird within 20 minutes. At around 20:00 hrs the bird headed west and was never seen again.

Plates 64–65. Cliff Swallow, Milovaig, Skye, Highland, August 2109. © *Sam Langlois Lopez*

Plates 66–67. Cliff Swallow, Milovaig, Skye, Highland, August 2109. © *Sam Langlois Lopez*

I am not a twitcher, but I do enjoy going after my local rarity/scarcity. During migration, there are days that 'feel' rare. It is difficult to explain, but every birder knows what I am talking about. The thrill and anticipation of knowing you could find something incredibly unusual, even if it does not happen, is still a great feeling. However, in this case it was totally unexpected. Perhaps this made our find even more special, a complete surprise that had crossed the Atlantic to make our trip one that we will remember forever.

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Cliff Swallow status in Scotland

This Nearctic species is a common breeding bird across the whole of the USA to central and NW Canada, except in the extreme SE USA and parts of California and adjacent SW Arizona. It is entirely migratory and winters from Bolivia and southern Brazil south to central Argentina.

There have been 12 accepted records of Cliff Swallow in Britain to the end of 2018, all of these in England. There have been six on the Isles of Scilly (10–27 October 1983, 4–5 December 1995, 28–30 September 2000, 26–30 October 2001, 6–10 September 2016 and 2–6 October2017); one in Cleveland (23 October 1988); one in East Yorkshire (22–23 & 28 October 1995); one in Sussex (1 October 1996); one in Dorset (29–30 September 2000) with possibly the same in Hampshire (1 October 2000), and one in Suffolk (2–6 October 2017). There is also a single record from Ireland - one in Co. Kerry on 16 November 1995.

The sightings have a strong south-westerly bias, with others found at well-watched sites on the south and east coast. The span of find dates in Britain is from 6 September to 6 November plus one on 4–5 December, suggesting all relate to birds displaced across the Atlantic by autumn weather systems. The Milovaig bird becomes the earliest one ever found in Britain by 11 days. There have been multiple arrivals in 1995 and 2000, but singles are more typical.

SCOTTISH BIRD SIGHTINGS

1 October to 31 December 2019

S.L. RIVERS

Records in Scottish Bird Sightings are published for interest only. All records are subject to acceptance by the relevant records committee.

The following abbreviations for recording areas are used: Angus & Dundee - A&D; Argyll - Arg; Ayrshire - Ayrs; Borders - Bord; Caithness - Caith; Dumfries & Galloway D&G; Highland - High; Lothian - Loth; Moray & Nairn - M&N; North-East Scotland - NES; Outer Hebrides - OH; Perth & Kinross - P&K; Shetland - Shet; Upper Forth - UF.

The American White-winged Scoter returned to Fisherrow/Musselburgh, and there was a record-breaking influx of White-rumped Sandpipers, though Nearctic passerines were in very short supply. The increase in records for UK colonist species such as Great White Egret continues, and a major influx of Snow Buntings occurred.

Grey-bellied Brant: an adult bird showing characteristics of this, as yet undefined, form was present at Newton of Petty, near Castle Stuart (High) from 24 November to 18 December, and nearby at Fisherton (High) on 27–31 December, with two present at Nairn beach (M&N) from 6–7 December into 2020. **Canada Goose (vagrant forms) Todd's** (*B.c. interior*): singles were at Aberlady Bay (Loth) on 2 October; at various sites on Tiree (Arg) from 14 October to 17 December; at Carnwath (Clyde) on 18 October; at Loch Gruinart RSPB Reserve, Islay (Arg) from 20 October to 4 November, and Craigens, Islay on 27 November; at Balranald RSPB Reserve, North Uist (OH) from 27 November to 17 December, and two near Scrabster (Caith) on 10 December. **Richardson's Cackling Goose** (*B.h. hutchinsii*): at least two were on North Uist (OH) from 12 October to 31 December, seen at Kyles Paible/Knockintorran/Balranald/Balemore; one at Mersehead RSPB Reserve (D&G) on 24 October, and 24–25 November, with it or another at Loaningfoot (D&G) on 22 November; at least one on Islay (Arg) from 26 October into 2020, one at Newton of Petty, near Castle Stuart (High) on 14–15 December, and it or another near Ardersier/Inverness Airport (High) on 31 December. **Snow Goose:** at least one adult white-morph was still on North Uist (OH) from September to 17 December; one on Islay (Arg) on 11 October; at least one at various sites in Clyde) from 17–24 October;, and near Douglas (Clyde) on 25 November; one at Auchincross, near New Cumnock (Ayrs) from 19 October into 2020 An adult white-morph was at Brims, near Thurso (Caith) from 30 November to 18 December; one near Swartmill, Westray (Ork) om 14 December. with presumed same on Mainland Orkney on 24–25 December and on Shapinsay (Ork) on 29 December into 2020. An adult blue-morph was at Airth (UF) on 11–12 October; one at Loch of Skene (NES) on 27 October, and two there on 10 November, and an intermediate-morph was at Findhorn Bay (M&N) on 31 December. **Taiga Bean Goose:** the regular over-wintering flock at Slamannan was noted from 4 October, with 158 present on 22 October; at least one was at Udale Bat RSPB Reserve on 4 October; two flew west over Ferryhills, North Queensferry (Fife) on 17 October; one was at White Sands Quarry, Dunbar (Loth) on 18 December, and one near Greenock (Clyde) on 25 December. **Tundra Bean Goose:** one was at West Freugh Airfield (D&G) on 29 November; 16 at St John's Loch (Caith) on 30 November; one was at Fleck, Mainland (Shet) on 7–15 December; one at Skaw Taing, Whalsay (Shet) on 8th; one at Loch of Spiggie, Mainland (Shet) on 22nd, and five at Loch of Strathbeg RSPB Reserve on 31 December. **Bewick's Swan:** one was at Loch of Strathbeg RSPB Reserve on 30 November. **Ruddy Shelduck:** three were still at Fail (Ayrs) to 1 October; then singles were at Udale Bay RSPB Reserve (High) on 5th and 10–15 November; at Threipmuir Reservoir (Loth) on 15–17 November; at Udale Bay again on 2–15 December; two at Cornabus Farm, Islay Arg) on 16–18 December, and one at Cramond (Loth) from 28 December into 2020.

Blue-winged Teal: the drake was at Frankfield Loch, Glasgow (Clyde) from September to 14 October, with presumed same at Ladies Loch, Milngavie (Clyde) on 2–7 November. **American Wigeon:** single drakes were at Loch Eye (High) from 3 October into 2020; at Merkinch LNR, Inverness (High) from 25 October to 10 November, with probably same nearby at Clachnaharry, Inverness on 23 November; at Loch of Swartmill, Westray (Ork) on 26 October; at Aileodair, Lochmaddy, North Uist (OH) on 31 October; at Fedderate Reservoir (NES) on 16 November; at Loch

Watten (Caith) on 16–29 November; at Loch Bee, South Uist (OH) on 28 November, and at Loch Insh (High) on 26 December into 2020. **Black Duck:** the regular drake at Strontian (High) was reported throughout the period. **Green-winged Teal:** single drakes were on North Ronaldsay (Ork) from 13 October into 2020; at Loch Gruinart RSPB Reserve, Islay (Arg) from 16 October to 4 November, and on 9–28 December; at Loch Bee/Gerenish, South Uist (OH) from 12 November to 23 December; at Loch Flemington (High) on 15 November; at Doonfoot (Ayrs) on 16–17 November and 10 December, and on the River Wick, at Wick (Caith) from 9 December into 2020. **Ring-necked Duck:** a juvenile was at Loch na Doirlin/Loch Tangusdale, Barra (OH) from 7 October into 2020; a juvenile female at Loch a' Phuill/Loch Bhasapol, Tiree (Arg) from 28 October, joined by a drake from 8 November to 18 December ; a juvenile at Loch of Houlland, Mainland (Shet) on 6–13 November; single adult drakes at Carlingwark Loch (D&G) on 18 November; and at Acharacle, Loch Shiel (High) on 2–15 December; and a 1st-winter drake at Loch Evelix, Dornoch (High) on 24–29 December.

Steller's Eider: a juvenile drake was on Loch of Swartmill, Westray from 29–30 October, and 6–8 November (Ork), seen from the Sanday ferry west of Shapinsay on 30th, and off Papa Westray (Ork) from 8 November to 23 December. **King Eider:** the regular drake was again off Kingsteps, Nairn (M&N) from at least 9 November. **Surf Scoter:** an adult drake was off Musselburgh/Fisherrow (Loth) from 11 October into 2020, with a female also there on 8 November; two drakes were off Cockenzie/ Port Seton (Loth) on 13 October; two in Dunnet Bay (Caith) on 27–28 October; one was off Luskentyre, Harris, in the Sound of Taransay (OH) on 30 October; one off Tentsmuir Point NR (Fife) on 24 November; a 1st-winter female was off Catacol, Isle of Arran on 24 November and 21–30 December - first for Clyde Islands; one in Largo Bay (Fife) on 25 November; a first-year/female was on Loch Ryan (D&G) on 27 November; a drake off Quanterness, Mainland (Ork) from 7 December, then off Hatston Pier, Kirkwall, Mainland (Ork) on 17–23 December; three (two ad drakes) were in the Sound of Taransay, Harris on 17 December, and three drakes were in Gosford Bay (Loth) on 31 December. **American White-winged Scoter:** the returning drake was off Fisherrow/ Musselburgh (Loth) from 25 October to 29 November and 17–27 December. **Black Scoter:** a drake was in Lunan Bay (A&D) on 13–30 November. **Hooded Merganser:** a drake was on the River Tay at Kingoodie (P&K) on 3 October.

White-billed Diver: an adult flew past North Ronaldsay (Ork) 27 October; four were off Papa Westray (Ork) on 28 October, and five on 29th; seven were seen off there on 10 November, 5 on 15th, 10 on 16th, five on 17th, 12 on 29th and eight on 30 November; one was in Scapa Bay, near Kirkwall (Ork) from 30 November to 1 December; one in Bluemull Sound off Sound Gruney (Shet) on 18 December, and one in South Nesting Bay off Grunna Taing, Mainland (Shet) on 24 December. **Spoonbill:** one was briefly at the River Esk mouth, Musselburgh (Loth) on 2 October, and one flew ESE at Ferryhills (Fife) on 17 October. **Bittern:** singles were seen at Lochwinnoch RSPB Reserve (Clyde) on 2–10 November; at Castle Loch NR (D&G) on 17–18 November, and Loch of Strathbeg RSPB Reserve (NES) on 29–30 December. **Cattle Egret:** one was at Bolfornought Farm, Stirling (UF) on 11–16 October (had been present c.3 weeks). **Great White Egret:** at least 17 were noted in October from Highland to Borders and Argyll to Dumfries & Galloway, all singles except for four on the Ythan Estuary (NES) on 6 October and two at Caerlaverock WWT Reserve (D&G) on 15 October. Up to 14 were seen in November, from Aberdeenshire to Borders and Argyll to D&G, all singles except for two at Hunter's Bridge, Kelso (Bord) on 4th. In December there were still singles on the Ythan Estuary/Loch of Strathbeg RSPB Reserve (NES) into

Plate 68. Cattle Egret, Bolfornought Farm, Stirling, Upper Forth, 13 October 2019. © *Mark Wilkinson*

2020, at Caerlaverock WWT Reserve to 3 December, at Montrose Basin (A&D) to 15 December; near Thirlestane Castle/Leader Water, Lauder (Bord) to 14 December; at Strathdevon, near Dollar (UF) on 11 December; at Lochmaben (D&G) on 19 December; at Newbigging Birks, near Jedburgh (Bord) on 23 December, and at Loch Tummel (P&K) on 24 December. **Honey-buzzard:** one was on Unst (Shet) on 12 October, and a dark-morph bird flew over Toft, Mainland (Shet) on 12 October. **Spotted Crake:** one was at Geosetter, Mainland (Shet) on 14 October; and one again at Levenwick, Mainland (Shet) on 16 October. **Crane:** five were at Loch of Strathbeg RSPB Reserve (NES) on 12–14 October, and five flew west over Ferryhills/St David's Harbour (Fife) on 19 October.

Black-winged Stilt: a first-winter was on Fair Isle on 9 October - a first for the island. **American Golden Plover:** singles were still at Burness, Sanday (Ork) to 4 October; at Gloup, Yell (Shet) to 12 October; at Bannaminn, near Papil, West Burra (Shet) on 1 October; at Feal Burn/Aithness, Fetlar (Shet) on 4th; near Aith, Mainland (Shet) on 10–12th; at Loch Ordais, Lewis (OH) on 10th; at Loch of Strathbeg RSPB Reserve (NES) on 11–14th; at Middleton, Tiree (Arg) on 12–14th, with another at Loch a' Phuill, Tiree on 14–15th; at Baleshare, North Uist (OH) on 13–17th; on Papa Stour (Shet) on 30 October; at Hosta, North Uist on 4 November, and one at Balemartin, Northern Uist on 5 November. **Baird's Sandpiper:** one was at Loch Gruinart RSPB Reserve, Islay (Arg) on 22 October. **White-rumped Sandpiper:** two were at The Range/West Gerenish, South Uist (OH) from 10–12 October, with three on 14th; two at Sanaigmore, Islay (Arg) on 12–13 October; one on Foula (Shet) on 12th; two at Loch Paible, North Uist (OH) on 13th ; one on the Ythan Estuary (NES) on 14–21st; with two on 18th; seven at Ardivachar, South Uist on 15th, with two still on 18th, 11 on 19th, seven on 20th, 11 on 21st, eight on 22nd, seven on 24th, two still on 25th, six on 26th, one on 29–30th, three on 31 October to 5 November, and one still on 8–10 November; one at Fail Flood, Tarbolton (Ayrs) from 15 October, with two on 17–23rd, and one still on 24 October; three on Berneray, North Uist on 16 October; two at Kilaulay/North Bay, South Uist on 16th, with one still on 17th, and one again on 24th; two at Kilpheder, South Uist on 19th; one at Loch Ordais, Lewis (OH) on 20th; one at Butt of Lewis, Lewis on 22nd; one at Ardvule, South Uist on 28 October and 8 November, and one near Orosay, South Uist on 31 October. The counts of 11 at Ardivachar on 19th and 21 October are new record site counts for Britain. **Buff-breasted Sandpiper:** singles were at Achnahaird (High) on 1–4 October; at North Loch, Sanday (Ork) on 2 October, and on Berneray, North Uist (OH) on 16 October. **Pectoral Sandpiper:** singles were still on Fair Isle from September to 8 October; at The Range/West Gerenish, South Uist (OH) on 14–19th and 30–31 October, and two at Ardivachar, South Uist on 15th, with one still on 21 October. **Semipalmated Sandpiper:** one was still at Grutness & Pool of Virkie, Mainland (Shet) to 6 October. **Long-billed Dowitcher:** one was at Loch Stiapabhat, Lewis (OH) on 16 October, and one at Sandaig/ Balephuill/ Middleton, Tiree (Arg) from 5 October to 8 November. **Grey Phalarope:** singles were at Tongue (High) on 10–11 October; at Stevenston Point, Irvine (Ayrs) on 30 October, and at Rosehearty (NES) on 14–16 December. **Lesser Yellowlegs:** one was at Capringstone Flash, Irvine (Ayrs) on 1–3 October, and one at Ardivachar, South Uist (OH) from 24 October to 2 November.

Ivory Gull: one flew past Cairnbulg Harbour (NES) on 12 November. **Sabine's Gull:** one flew past Eyemouth (Bord) on 1 October; one was off White Sands Quarry, Dunbar (Loth) on 1 October; one flew past Sheigra (High) on 2nd; one passed Kinghorn (Fife) on 19 October, and one headed south past Eyemouth on 8 November. **Laughing Gull:** a first-winter was near Ahmore, North Uist (OH) on 15 October. **Mediterranean Gull:** vastly under-reported away from the Firth of Forth. **Ring-billed Gull:** one was at Holy Loch, near Dunoon (Arg) on 24 December. **Glaucous Gull:** about 30 in October, mostly on the Northern Isles, except for singles on the Outer Hebrides, Argyll and Lothian, and all singles except for two at Lamba Ness, Unst (Shet) on 20th, and three at Papa Stour (Shet) on 30 October. Over 60 in November, from Shetland to Borders and Argyll, mostly singles but higher counts of three on Fair Isle on 2nd; five at Skaw, Unst (Shet) on 3rd; three at Breckon, Yell (Shet) on 5th; three on Papa Westray (Ork) on 29th; six at Lamba Ness , Unst on 12th, four on 28th, and seven there on 29 November. Over 40 in Decmber, from Shetland to Lothian and Argyll, mostly singles, but with higher counts of three at Norwick, Unst on 5–11th, with five there on 8th; six at Burrafirth, Unst on 16th, and three on Fair Isle and four at Westing, Unst on 30 December. **Iceland Gull:** about 19 in October, from Shetland to Highland and Outer Hebrides to Argyll, all singles except for two at Brora (High) on 13th, and two at Fidden, Mull (Arg) on 19th. About 24 in November, from Shetland to Morayshire and Arran, Clyde Islands, all singles except for two on Fair isle on 2nd, and two at Applecross (High) on 2–3rd. In December up to 30 noted , from Shetland to Highland and Clyde Islands, all singles except for two at Rubha Arnal, North Uist (OH) on 15–27th, and

four there on 30 December. **Kumlien's Gull:** a juvenile was at Embo (High) on 27 November, and a 2nd-winter at Birsay, Mainland (Ork) on 5 December. **Yellow-legged Gull:** one was at Loch Pooltiel, Skye (High) thoughout into 2020. **Black Tern:** one was off Fife Ness (Fife) on 11 October, and one flew past Dunglass Burn (Bord) on 12 October.

Pomarine Skua: over 70 reported in October mostly on the east coast but noted from Shetland to Borders and Argyll. Higher counts were seven at North Queensferry (Fife), six at Scoughall (Loth) and 25 at Hound Point (Loth) all on 1 October. About 30 in November, from Shetland to Lothian, with higher counts of 12 off Embo (High) on 4th; and nine off Hound Point on 7 November. Two flew past Saltcoats harbour (Ayrs) on 5 December. **Long-tailed Skua:** two flew past Scoughall (Loth) and one past Hound Point (Loth) on 1 October; singles were off North Ronaldsay (Ork) on 3rd and 5 October; one passed The Braighe, Lewis (OH) on 7th, and five flew past Kinghorn (Fife) and two past Scoughall on 19 October.

Turtle Dove: singles were at Sollas, North Uist (OH) on 3 October; at Scousburgh, Mainland (Shet) on 4 October; at Esha Ness, Mainland (Shet) on 5 October; at Ringasta, Mainland (Shet) on 15th; at Loch of Hillwell, Mainland (Shet) on 16 October, and at Scalloway, Mainland (Shet) on 25–26 November. **Snowy Owl:** singles were still at Ronas Hill, Mainland (Shet) to 13 October and on 8 November, still on St Kilda (OH) to 25 October; at Blacklatch Burn, near Alford (NES) on 3 November; near Moaness, Hoy (Ork) on 6 November, and on Eday (Ork) again on 5–31 December. **Tengmalm's Owl:** one was seen near Forsinard (High) on 29 October. **Bee-eater:** one was still at Ollaberry, Mainland (Shet) to 6 October. **Hoopoe:** Singles were at Kelso (Bord) on 8 October; at Toft, mainland (Shet) on 11 October; at St Margaret's Hope, South Ronaldsay (Ork) on 17–23rd; at Altandhu, near Achnahaird (High) 31 October; at Quoyangry, South Ronaldsay (Ork) on 9 November; one near Reiff (High) on 9th, and one at Foveran (NES) on 10–29 November. **Gyr Falcon:** a white-morph bird was at Baleshare, North Uist (OH) on 26 December.

Brown Shrike: one was on Fair isle on 13 October; one at Grutness/Sumburgh, Mainland (Shet) on 14 October; one was picked up dead on North Ronaldsay (Ork) on 15 October, and one at Eoligarry then Morghan, Barra (OH) on 3-5 November. **Red-backed Shrike:** singles were still on North Ronaldsay (Ork) on 1–6 October, with two on 4th; at South Califf, Tingwall, Mainland (Shet) on 1–6 October; at Blett, Cunningsburgh, Mainland (Shet) on 2–6 October; on North Ronaldsay again on 13–15th; at Sandwick, Mainland (Shet) on 19th, and at Hoswick, Mainland (Shet) on 20th and 23–26 October. **Lesser Grey Shrike:** singles were at Halligarth, Unst (Shet) on 11–12 October; at Northdale, Unst on 18 October, and at Rompa/Channerwick, Mainland (Shet) on 19 October. **Great Grey Shrike:** singles were at Torness Point (Loth); the Isle of May; on North Ronaldsay (Ork); at Slains Pools (NES); at Kergord, Mainland (Shet), and Tingwall, Mainland (Shet) all on 6 October; the Isle of still on 7–9 October; on North Ronaldsay still to 12th; at East Denwick plantation, Mainland (Ork) on 7th; at Houbie, Fetlar (Shet) on 7th; on Out Skerries (Shet) on 8–17th; on Hoy (Ork) on 11th; at Loch of Hillwell, Mainland (Shet) on 17th; at Burwick, South Ronaldsay (Ork) on 18th; another on the Isle of May on 19–20th; at Loch Mahaick, Stirling (UF) from 25 October to 9 November; at Backwater Reservoir (A&D) from 25 October into 2020; at Mossbank, Nethybridge (High) on 28 October; at Hill of Fare, near Banchory (NES) on 29 October; at Belhaven Bay, Dunbar (Loth) on 30 October; at Muir of Dinnet (NES) on 1–2 November; at Milton Loch, Boat of Garten (High) on 29 November, and at Mey (Caith) on 20 Decmber. **Waxwing:** first were noted on 2 October, with up to 250 seen by the end of month, mostly in the NE but with birds from Shetland to Fife and the Outer Hebrides to Argyll, and high counts of 18 at Dyce, Aberdeen (NES) on 7th, and 42 at Stornoway, Lewis (OH) on 24th. In November, well over 1,300 were noted, most still in the north, from Shetland to Borders and the Outer Hebrides to Ayrshire, with high counts of 170 at Forres (M&N) on 14th,and 150 on 24th; 300 in Aberdeen (NES) on 23rd; 82 in Elgin (M&N) on 22nd, and 85 in Dundee (A&D) on 25th. In Decmber there were over 1,400 noted, with a southerly shifts, with bird noted from Shetland to Lothian and the Outer Hebrides to Ayrshire, and high counts of 110–112 at Inverurie (NES) on 6–9th; 80 in Elgin (M&N) on 10–11th; 150 in Dundee (A&D) on 15th; 150 in Perth (P&K) on 16th; 80 in Bearsden, Glasgow (Clyde) on 22nd, and 100 in Edinburgh (Loth) on 26th.

Woodlark: one was on Fair isle on 29 October. **Shore Lark:** singles were at St Abb's Head (Bord) on 5 October; on North Ronaldsay(Ork) on 5–12th; on the Isle of May on 5–8 October; at Fife Ness (Fife) on 12th; two on Fair Isle on 16 October; one flew over Dowlaw (Bord) on 13 November, and at Dornoch Point (High) from 19 November into 2020. **Short-toed Lark:** one was at Tresta, Fetlar (Shet) on 2–11 October, and one at Garths Ness, Mainland (Shet) on 4–11 October.

Dusky Warbler: one was at Haroldswick, Unst (Shet) on 2–4 October; one at Millfield, Burray (Ork) on 4 October, and one on Fair Isle on 14 October. **Radde's**

Warbler: singles were at Dale of Walls, Mainland (Shet) on 8 October; at Barns Ness (Loth) on 16th; on Fair Isle on 17–18th, and on the Isle of May on 23–24 October. **Pallas's Warbler:** singles were at Baltasound, Unst (Shet) on 8–11 October; at Kilminning, Fife Ness (Fife) on 9–11 October; on Fair isle on 14–15th; at St Abb's Head (Bord) on 21 October; at Hoswick, Mainland (Shet) on 1–2 November; on Trondra (Shet) on 4 November, and on the Isle of May on 4–5 November. **Yellow-browed Warbler:** there were at least 380 noted in October, with about half on Shetland, 30 on Fair Isle, over 25 on Orkney and about 30 on the Outer Hebrides. Elsewhere most were in Fife (c22) and NE Scotland (c18), but noted in all recording areas south to Borders and Dumfries & Galloway. Mostly singles, but higher counts of six on the Isle of May on 4th; five at Wormadale, Mainland (Shet) on 5th; 11 on Yell (Shet) on 8th; five at Kilminning (Fife) on 10th; nine on Fair Isle on 4th and 14th, with eight still on 15th, and eight on Barra on 16–18th. In November there were singles on the Isle of May on 2nd, 5–6th and 8th; singles at Skateraw, Barns Ness and Torness Point (all Loth), at Eyemouth (Bord) and at Craigston, Barra (OH) all on 3rd; at Langass Lodge, North Uist (OH) on 5th; at Vidlin, Mainland (Shet) on 6th, and at Baron's Haugh RSPB Reserve, Hamilton (Clyde) on 8 November. **Hume's Warbler:** one was at Tarbat Ness (High) on 5–11 November. **Greenish Warbler:** one was at, Blett, Cunningsburgh, Mainland (Shet) on 2–3 October. **Blyth's Reed Warbler:** singles were at Barns Ness (Loth) on 8–9 October; at Quendale, Mainland (Shet) on 12th; at Sumburgh Head quarry, Mainland (Shet) on 16th and on the Isle of May on 18th. **Marsh Warbler:** one was at Cruden Bay (NES) on 7 October, and one on Fair Isle on 15 October. **Icterine Warbler:** one was at Girnigoe, near Castle Sinclair (Caith) on 6 October. **Lanceolated Warbler:** one was on Skaw, Whalsay (Shet) on 9 October, and one on Fair Isle on 15 October. **Barred Warbler:** About 24, all in October, mostly on the Northern Isles - 14 on Shetland, three on Fair Isle, three on Orkney: elsewhere there were singles at Kilminning (Fife) on 1–7th; at St John's Loch (Caith) on 4th; at Inverbervie (NES) on 12–14th, and one at Musselburgh (Loth) on 27 October. **Western Subalpine Warbler:** a female was at Nasg, Barra (OH) on 8–10 October (DNA confirmed as NW African subspecies *inornata*), and a female was at Loch of Hillwell, Mainland (Shet) on 15–19 October.

Firecrest: singles were at Mains of Usan (A&D) on 6–12 October; at Guardbridge (Fife) on 14 October; on Fair Isle on 15–17th; at Coldingham (Bord) on 22nd; on the Isle of May on 7–13 November; at Barns Ness (Loth) on 8 November; at Dervaig, Mull (Arg) on 8th; at Knockintorran, North Uist (OH) on 21 November, and one on Fair Isle on 31 December. **Rose-coloured Starling:** an adult was at Loch Boisdale, South Uist (OH) on 4 October to 5 November; an adult at St Boswalls (Bord) on 14 November, and a first-year at Eastriggs (D&G) on 14–26 November. **Swainson's Thrush:** one was in Lerwick, Mainland (Shet) on 27 October. **Black-throated Thrush:** a first-winter was at Scousburgh, Mainland (Shet) on 14 October, and one seen briefly at Hamilton (Clyde) on 16 December.

Rufous-tailed Robin: one was at Feal Plantation, Houbie, Fetlar (Shet) on 6 October. **Bluethroat:** singles were at Skaw, Whalsay (Shet) on 5th and 11 October; at Sandness, Mainland (Shet) on 8–11 October; on Fair Isle on 15th, and on St Kilda (OH) on 16 October. **Red-flanked Bluetail:** singles were at Norwick, Unst (Shet) on 1–3 October; on the Isle of May on 4–6 October; at North Loch, Sanday (Ork) on 5th; at Rattray Head (NES) on 6th; on Fair Isle on 6th and 14–15th; at Rendall, Mainland (Ork) on 14th, and in Lerwick, Mainland (Shet) on 21 October. **Red-breasted Flycatcher:** about 24 were noted in October, all singles from Shetland to Borders and the Outer Hebrides to Argyll. In November there were singles at Collieston (NES) on 5th, and at Keoldale, Durness (High) on on 8 November. **'Eastern' Stonechat:** birds not (yet) identified to species/ subspecies were on East Burra (Shet) on 6 October, and at Westshore, Burray (Ork) on 16–19 October. **Siberian Stonechat:** one was at Loch of Hillwell, Mainland (Shet) (Ork) from September to 16 October (confirmed by DNA). **Stejneger's Stonechat:** one showing characteristics of this form was at Westing, Unst (Shet) on 8–14 October; one was at Sandwick, Mainland (Shet) on 26–28 October (DNA confirmed). **Desert Wheatear:** one was on Foula (Shet) on 16 November, and one at Sumburgh Head, Mainland (Shet) on 25–26 November.

'Black-bellied Dipper': a colour-ringed female (orange over blue left leg, yellow over metal right leg) was at the Kinness Burn, St Andrews (Fife) on 28 October, and noted again on 22 December. **'Grey-headed Wagtail' (*thunbergi*):** a male was still on North Ronaldsay fromSeptember to 11 October. **Richard's Pipit:** one was on the Isle of May on 6th and 17 October; two on Fair Isle on 16 October, with one still on 17th and one on 20th; one on Out Skerries (Shet) on 16th; one at Musselburgh (Loth) on 17 October; one on Oronsay (Arg) on 18th, and one at Bakkasetter, Mainland (Shet) on 20 October. **Olive-backed Pipit:** one was still at Hoswick, Mainland (Shet) from September to 3 October, and one still on Sanday (Ork) to 6 October; singles were at Quendale, Mainland (Shet) on 1 October; at Easter Skeld, Mainland (Shet) on

3rd; at Mains of Usan (A&D) on 6th; at Sandwick, Mainland (Shet) on 8th; at Loch of Hillwell, Mainland (Shet) on 11–15th; at Skaw, Unst (Shet) on 12th; in Lerwick, Mainland (Shet) on 15th; one at Howick, Mainland (Shet) again on 15th; on Fair isle on 16–18th, with two on 17th; at Baltasound, Unst (Shet) on 19 October; at Tarbat Ness (High) on 5 November, and on the Isle of May on 5 November. **Pechora Pipit:** one was on Fair Isle on 15–17 October. **Red-throated Pipit:** one was on Fair Isle on 13–14 October. **Water Pipit:** singles were at Dry Burn, Skateraw (Loth) on 21 October; at Piltanton Burn (D&G) on 28 October; at Water of Luce (D&G) on 29th; at Troon and Barassie (both Ayrs) on 3 November; at Seamill (Ayrs) on 4–17 November, and 7–29 December; at Wine Bay, Great Cumbrae (Clyde Islands) from 6 November to 24 December; at Dunbar (Loth) from 9 November into 2020; at North Berwick (Loth) on 17th; at Mersehead RSPB Reserve (D&G) on 22nd; at Troon again on 30 November; at Torness Point (Loth) on 16 December; two at Dornoch Point (High) on 17 December, with one still to 29 December, and one at Lunderston Bay (Clyde) on 29 December,

Hawfinch: away from breeding areas, singles were at Valyie, Norwick, Unst (Shet) on 8 October; over Ferryhills, North Queensferry (Fife) on 8 October, and on 10th, 16th and 18th; near North Berwick (Loth) on 9th; at Gutcher, Yell (Shet) on 11th; at Feal Burn, Fetlar (Shet) on 12–13th; on North Ronaldsay (Ork) on 15–28th, with two there on 18–22nd; on Fair Isle on 15–19th, with two there on 16–17th; at Tresta, Fetlar on 16th; at Baltasound, Unst on 18th; near Braeport, Dunblane (UF) on 27 October; on the Isle of May on 2 November; at Endrick Water, near Balfron (UF) on 16 November, and two at Keith Marischal, Humbie (Loth) on 21 December. **'Northern' Bullfinch:** four were at Ferryhills, North Queensferry (Fife) on 26 October, and eight there on 27 October, and one was at Castaway Cove, Shell Bay (Fife) on 9 November. **Common Rosefinch:** singles were on the Isle of May on 5–6 October; on Fair Isle on 17–19 October, and at Valyie, Norwick, Unst (Shet) on 7 November. **Hornemann's Arctic Redpoll:** one was on North Ronaldsay (Ork) from September to 18 October; then singles at Port Nis, Lewis (OH) on 10 October; on Foula (Shet) on 12th; at Skaw, Unst (Shet) on 17th; on Fair Isle on 20–24th, and in Lerwick, Mainland (Shet) on 28 October. **Coues's Arctic Redpoll:** one was at Lamba Ness, Unst (Shet) on 4–5 October, with two there on 8 October; singles were on Bressay (Shet) on 8th; at Burrafirth, Unst on 12–14 October; near Valsgarth, Unst on 28 October; on North Ronaldsay (Ork) on 13 November, and at Voe. Mainland (Shet) from 17 November to 15 December. **Arctic Redpoll sp.:** birds not definitely identified to subspecies were at Valyie, Norwick, Unst (Shet) on 3 October; on Fair Isle on 10 October, and on North Ronaldsay (Ork) on 2 November. **Two-barred Crossbill:** five were at Langass Wood, North Uist (OH) on 28 October, with seven there on 29–30th, three on 3 November, two on 12th and seven again on 24 November. **Yellow-rumped Warbler:** one was at Callernish, North Uist (OH) on 15–16 October.

Ortolan Bunting: one was on Foula (Shet) on 12 October. **Little Bunting:** singles were at Sumburgh, Mainland (Shet) on 3 October; at Quendale, Mainland (Shet) on 4 October; at Sandquoy, Sanday (Ork) on 5 October; at Camb, Yell (Shet) on 8 October; at South Ham, Bressay (Shet) on 8–14 October; at Rackwick, Hoy (Ork) on 11th; at Baltasound, Unst (Shet) on 14th; at Craig David croft, Inverbervie (NES) on 14th; at Sumburgh on 15th; at Dale of Walls, Mainland (Shet) on 17 October; at Scatness, Mainland (Shet) on 17 November, and at Gryfe Reservoirs (Clyde) on 19 November. **Lapland Bunting:** in October there were over 50 on the Northern Isles and over 35 on the Western Isles, with peak counts of 16 on Sanday (Ork) on 3rd and 14 at Balranald RSPB Reserve, North Uist (OH) on 7 October. Elsewhere there were singles on the Isle of May on 1–3 October, at Boarhills (Fife) on 26th, and at the Eden Estuary, Guardbridge (Fife) on 27 October. In November there were singles at Skaw, Unst (Shet) on 1st; on Westray (Ork) on 8th; at Haroldswick, Unst on 9–10th; at Caolas, Vatersay (OH) on 10th; at Balranald on 15th; on North Ronaldsay (Ork) on 15th, and at Knockintorran, North Uist on 23rd. In December there was one at Balranald on 16th; five at Whitehills, near Banff (NES) on 23rd, and one at Eochar, South Uist (OH) on 24th. **Snow Bunting:** a major influx, mostly to the Northern and Western Isles saw about 2,200 noted in October, with records from Shetland to Lothian and Outer Hebrides to Ayrshire, with higher counts of 126 on Fair Isle on 3rd; 92 on Out Skerries (Shet) on 14th; 94 on North Ronaldsay (Ork) on 15th, and 150 at Norwick, Unst (Shet) on 15th. In November, still about 2,200 noted, as far south as Borders and Ayrshire, with higher counts of 137 on Fair Isle on 5th; 120 on Hoy (Ork) on 6th; 150 at Balranald RSPB Reserve, North Uist on 8th, and 254 on Papa Westray (Ork) on 15th. In December, numbers had reduced to about 1,600, still mostly in the north and west, but also as far south as Lothian and Ayrshire, with higher counts of 200 at Halkirk (Caith) on 15th; 890 at Balranald on 16th, with 400 still on 17–20th and 270 on 31st, and 150 near Thurso on 18 December.

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PhotoSPOT

Plate 69. I'm just a migrant to the Isle of Skye, a Londoner who has managed to get my family to holiday there for the last three years. I am more into sound recording than photography and had headed up to Ben Aslak to sound record Ptarmigan - I had no joy.

Heading back, I disturbed several Woodcock from the edge of the road in the failing light, I ended up counting 21. One bird kept landing just a few metres away from my car. With this amazing opportunity, I grabbed my camera for some through-the-windscreen shots. It then dawned on me to get out to take a few shots. I repositioned the car to try to gain the maximum cover and hoped the Woodcock would behave well. It allowed me to get several shots of it in the headlights, which also gave me cover. Dropping the shutter speed down to 1/40th second (and holding my breath) I was able to get some shots at the highest ISO of 12,800, this is the best one by miles.

When I first got a DSLR camera back in the early 2000s, I used to think taking any picture over 400 ISO was risky, let alone 12,000 ISO.

Equipment used: Nikon D850, 300 mm lens, Shutter Priority, ISO 12,800, 1/40 sec, f4.0.

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